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# East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

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31 December 1984

# EAST EUROPE REPORT

## ECONOMIC AND INDUSTRIAL AFFAIRS

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ENERGY AND MATERIAL SAVINGS, BASIS OF INTENSIFICATION

Prague SVET HOSPODARSTVI in Czech 30 Aug 84 pp 1, 5

[Article by Lubomira Cizova: "The Indispensable Precondition of Intensification"]

[Text] The conservation of material resources--fuels, raw materials, energy and industrial materials primarily--is the indispensable precondition of the intensification of the national economy in the socialist states. Material consumption continues to be very high--on the average it amounts to approximately 70 percent in industry and approximately 60 percent in agriculture of the value of end production.

Fuel and energy consumption in the CEMA member countries increased from 1.9 billion tnp [tons of standard fuel] in 1973 to 2.5 billion tnp at the present time. Yet, a mere 1 percent reduction of this consumption would mean annual savings of 25 million tnp, which represents approximately 350 million dollars at the present level of world prices. The conservation of 1 kWh in all thermal power plants of CEMA member countries and 1 percent reduction of electric energy consumption in the distribution network would by 1985 save approximately 2 million tnp in the CEMA states. According to Soviet author I. Oleynik, the resulting economic effect of each percent of fuel and energy saved in production is twice (in some instances even three or four times) as high as the advantage from the comparable increase in labor productivity. He points out that the cost of economy measures on the consumption of material resources in the USSR represent approximately 20-25 percent of potential expenditures necessary for increasing the mining, production and transportation of the same quantity of resources. The cost of saving 1 ton of rolled stock in the engineering industry, for example, amounts to approximately 250-300 rubles, which is only 20 percent of capital outlays on the production of the same quantity of this material with reference to the prorated cost of ore mining, production of pig iron and steel, on coke production, and so on.

Conservation and rational use of fuels, raw and industrial materials are a necessary precondition for the further intensification of the development of the national economy in the CEMA countries because the costs of their mining, production and transportation have been rapidly increasing. This is due primarily to the deterioration of mining conditions, decline in the quality of raw materials and steadily increasing ratio of mining in the remote northern

and eastern areas of the USSR in the total volume of exploited raw materials. For example, the average depth of exploration wells in prospective deposits of crude oil and natural gas in the USSR increased from 1,350 meters in 1950 to almost 3,000 meters at the present time. On the other hand, the average iron content in the ore mined decreased 15-20 percent during the same period, and as a result the mining of raw ore necessary for the production of 1 ton of enriched ore increased from 1.2 tons in 1955 to 2 tons at the present time.

For this and other reasons, the costs of mining 1 ton of crude oil in the USSR during the last 5-year plan were 100 percent higher than in the 1968-1972 period, and they are likely to increase further during the current 5-year plan. Due to the deterioration of natural and technical conditions in the GDR, the standard mining costs per unit of increase in the quantity of mined raw materials increased, in comparison with the previous decade, by approximately 50 percent in the 1970's, and are expected to rise more than 100 percent during the current decade.

Rational use of raw materials in production and private consumption, less waste and better utilization of secondary raw materials is also of considerable significance for the reduction of proper cost, accumulation increase and better prospects for their utilization without endangering the living environment.

The measures aimed at the conservation and rational use of resources therefore are one of the key tasks of the national economy in the socialist states. Among the most important is the improvement of the sectoral structure of the economy, that is, a gradual reduction of the share of materials-, and energy-intensive production particularly in countries with an inadequate raw materials basis, rationalization of fuel-energy basis by the transition from the so-called crude oil type to the coal type. It is anticipated that the share of solid fuels including coal will considerably increase, that consumption of crude oil as the initial raw material for chemical industry will decrease, that technical modernization of enterprises will result in the introduction of more economical technologies, and that new types of products with smaller material consumption will be developed.

Technical progress will play the decisive role in the implementation of these measures. As numerous important documents of party bodies and materials from the June meeting of CEMA point out, its acceleration will be one of the foremost tasks in the forthcoming period.

10501

CSO: 2400/85

## CSSR-EEC RELATIONS DISCUSSED

Prague ZAHNANICNI OBCHOD in Czech No 7-8, 1984 pp 22-24

[Article by Milan Cernohuby: "The CSSR and EEC Relations"]

[Text] The postwar economic development in Europe is characterized by increasing international pressures motivated by more and more distinctive internationalization of production, supported by scientific and technological development whose dynamism, especially after 1970, has been unprecedented. Mechanization, automation, robotization and other factors leading in their consequences to structural changes in production and to higher demands on specialization and cooperation that cannot be fulfilled by internal forces of a particular country are becoming increasingly crucial.

This process cannot help but affect international trade. The authors of the General Agreement of Tariffs and Trade (GATT) had foreseen the establishment of integrated economic entities, and contractually formulated its legal basis in GATT art XXIV, which makes it possible to establish tariff unions and free trade areas.

In the area of socialist economic integration this process resulted in the organization of the Council of Mutual Economic Assistance (CEMA), which is neither a tariff union nor a free trade area but a totally new model of economic cooperation of countries mutually united by their common goals in political as well as economic areas.

In West Europe the first expression of the integrational trends was the development of the European Coal and Steel Community (ESUO, also known as the so-called Mountain Union) established by the Paris Agreement of 18 April 1951, which organized a common market for trade in those raw materials and products among its founding members, i.e., the FRG, France, Italy, the Netherlands, Belgium and Luxembourg. The development thus initiated continued with the organization of the European Economic Community (EEC) and the European Atomic Energy Commission (Euratom) by the Rome Agreement of 25 March 1957. The basis for the agreement on the EEC was the organization of a tariff union in the sense of GATT art XXIV, with joint external tariffs applied against third countries, and the establishment of a common market within the community, with a free movement of goods, services, work forces and capital. Gradually common agencies were formed (by the so-called merger contract of 1967) and thus, in addition to a single parliament and a court, the EEC has at present also a single commission and a council of ministers.

One after another additional countries joined the EEC; its current members are the FRG, France, Italy, the Netherlands, Luxembourg and Belgium, with Great Britain, Ireland and Denmark since 1973, and Greece since 1980.

#### CSSR Trade With the EEC

The significance of the EEC for Czechoslovak foreign trade is evident from the fact that its share in the CSSR's total trade with the advanced industrial countries (ECD) over an extended period was in the 55-60 percent range. In 1983 it represented 59.8 percent of Czechoslovak exports and 53.75 percent of Czechoslovakia's imports. Despite the problems with sales in the EEC markets and a growing protectionism, Czechoslovak exports to that area were up 1 percent last year, particularly to Great Britain (14.0 percent) and to the Belgium-Luxembourg Economic Union [UEBL] (12 percent).

On the other hand, a considerable decline was noted only in the case of Italy--12.9 percent). A positive factor in this relation is the fact that the share of engineering products in Czechoslovak exports is higher than in other advanced industrial countries.

The most important trade partner among the EEC countries is the FRG, whose share in total Czechoslovak trade with advanced industrial countries amounted to 27.25 percent in 1983; next are Great Britain (7.39 percent), Italy (5.91 percent), France (5 percent), the Netherlands (4.5 percent), the UEBL (2.84 percent), Denmark (1.44 percent), Greece (1.05 percent), and Ireland (0.17 percent).

In recent years the CSSR has maintained an active trade balance with the EEC. However, the structure of mutual trade continues to be disadvantageous because raw materials and semifinished goods (about 40 percent) predominate in Czechoslovak exports, while in imports products of the processed type, with a high share of value added, dominate (in 1983 37.2 percent in machinery, and as much as 49.2 percent in case of Italy). This factor adversely affects future prospects of Czechoslovak trade with the EEC. Although its causes stem from the sphere of the domestic Czechoslovak economy, a more liberal import system than the one the EEC continues to apply against the CSSR, particularly in the case of Czechoslovak consumer goods, would enhance further development.

#### Trade-Political Relations

At the time of the establishment of the EEC, the CSSR had long-term trade agreements concluded with all its member countries. Nevertheless, toward the end of the preceding period, which was supposed to create conditions for the adaptation of national economies to the Common Market, the authority in issues of trade policies was completely transferred to EEC agencies, namely, its council and its commission. In 1972 a decision was adopted, according to which the member countries were not permitted to negotiate in the future any bilateral trade agreements with socialist countries or, as the case may be, to extend the validity of the already existing trade agreements concluded by the CSSR with individual member countries as of 31 December 1974.



Nevertheless, that did not lead to a situation where there are not agreements, as some occasionally think in error, because valid agreements had been concluded with most of the EEC member countries in the 1920's and 1930's; the agreements contain mainly regulations of the principle of the highest advantage. Furthermore, a multilateral contractual regulation is contained in the GATT, and its importance for the CSSR has been thus enhanced even more. The following old trade agreements remain in force:

--trade agreement between the Czechoslovak Republic and the USSR (Prague, 23 December 1925);

--provisional regulation on trade relations between the Czechoslovak Republic and the Kingdom of Denmark (exchange of notes, Prague, 18 April 1925);

--trade agreement between the Czechoslovak Republic and France (Paris, 2 July 1923);

--trade agreement between the Czechoslovak Republic and the United Kingdom of Great Britain and Ireland (London, 14 July 1923);

--provisional trade agreement between the Czechoslovak Republic and the Republic of Greece (Athens, 30 July 1932);

--Czechoslovak-Dutch trade agreement (The Hague, 20 January 1923).

These trade agreements contain regulations on the legal status of physical and legal persons of the one party to the agreement on the territory of the other party to the agreement (in the so-called arrestation amendments), and also on issues concerning customs, taxes, levies, transportation, including transit, naval transportation; etc. Some of those agreements regulate the area of economic relations to the fullest extent, others are limited to the regulations of the customs system alone.

The crucial factor in the development of trade-political relations between the CSSR and the EEC as a whole will be the resolution of relations between CEMA and the EEC. As known, CEMA initiated a dialogue between those two integrational bodies as long ago as in 1974; CEMA cannot be blamed for the fact that at present the negotiations are stalemated. One cannot overlook the fact that this is a complicated gamut of issues with not only economic but also distinctly political aspects. It is hardly necessary to repeat here that CEMA cannot agree to unequal trade regulations that would in any way modify the principle of the highest advantage, particularly by a demand of effective reciprocity.

In such a situation the CSSR proceeds from a pragmatic premise in an effort to create and expand the space for Czechoslovak exports that are encountering many trade-political obstacles in the EEC markets. While the EEC authorities do recognize that the CSSR is a contractual party to the GATT, they are nevertheless applying against many Czechoslovak goods an autonomous system with protectionist and discriminatory factors, in particular such as quotas and licensing actions even for unrestricted commodities. At the current level of relations any defense against such impediments is difficult.

Partial agreements of a trade-technical type (sectoral agreements), which have mitigated at least to some extent the harsh consequences stemming from exports of Czechoslovak products to the EEC from the application of protectionism in certain areas, meant a certain way out from that situation.

#### Sectoral Agreements

##### a) Agreement on Czechoslovak Export of Metallurgical Products

Following the introduction of strict limitations of imports of metallurgical products, an agreement on trade with such products was concluded in 1978--still within the GATT--between the CSSR and the EEC Commission. Although those products are in the province of the ESUO (the Mountain Union) and are not subject to regulations on joint trade policies contained in the Rome Agreement (arts 113 and 114), the commission concluded the agreement for the EEC. However, this practice has now been accepted and on the basis of a mandate issued annually by the Council of Ministers the commission is authorized to negotiate this type of agreements with third countries, which number 15 at this time.

The agreement contains essentially an obligation on the part of the CSSR not to exceed its exports to the EEC over the amount of the quotas stipulated for each individual country, and furthermore not to sell at prices below the so-called minimum price reduced by the amount of the penetration margin of profits, which amounts to 4 percent for special steel, 6 percent for regular steel and 25 percent for second-grade steel. According to international commercial customs this penetration margin of profits makes it possible for exporters to compete with domestic production. The agreement contains the proviso that the penetration margin of profits may be revoked in case of violation of price discipline. This occurred for the first time last year (18 November 1983) due to complaints by Italy. It was reinstated in the new agreement for 1984, but under the condition of strict observation of the agreed-upon pricing system.

The total quota for the current year is set at 665,000 tons and divided according to individual countries:

FRG	268,000 tons
Benelux	40,690 tons
France	87,500 tons
Italy	148,750 tons
Great Britain	14,000 tons
Ireland	6,175 tons
Denmark	33,250 tons
Greece	66,900 tons
Total	665,265 tons

According to experience thus far, these amounts are adequate, with the exception of France, and in particular of Great Britain.

Despite all efforts the British quota could not be increased for the time being. The argument about the crisis in the sector of metallurgical production is unacceptable because emergency measures following the so-called Davignon Plan

apply to all manufacturers in the EEC and affect the producers in Great Britain in the same way as in the other countries of the community.

Even with the limited importance of this agreement in terms of the subject of its regulation, it brings both parties many advantages and for that reason it is annually renewed provided that the same principles are observed.

#### b) Agreement on Czechoslovak Export of Textile Goods

In 1980 the CSSR entered the Agreement on International Trade with Textile Goods (Multifiber Arrangement), which offered an opportunity to negotiate on its basis a special agreement with the EEC, and thus to eliminate the uncertainty stemming from the autonomous measures applied until then by the EEC against Czechoslovak textiles.

The first agreement was signed on 18 September 1981, retroactive to 1 January 1981, for a 2-year period, i.e., until the end of 1982. The second agreement was concluded on 16 August 1982 and is applicable until 1986; like the preceding agreement, it secured an adequate space for exports of Czechoslovak textiles to the EEC area. Exports subject to quantitative limits are divided into three groups according to their sensitivity: the most liberal annual rates for increase in exports also proceed from that consideration. The adopted quotas are allocated among individual countries as follows (in percent):

FRG	28.5
Great Britain	23.5
France	18.5
Italy	15.0
Benelux	10.5
Denmark	3.0
Greece	2.0
Ireland	1.0

This allocation leads to a territorial imbalance because while the quotas are completely exhausted in certain countries, in others they are inadequate, particularly in relation to the FRG, which provides the most important market for Czechoslovak textiles and where the quotas are insufficient. Then it is not always possible to achieve a territorial rearrangement, although the EEC Commission is trying to arrange such shifts in accordance with Czechoslovak demands.

#### c) Agreement on Czechoslovak Exports of Mutton

In February 1984 consultations with the EEC commission dealt with an extension of the agreement on mutton exports concluded in 1982. Although this agreement is of lesser importance (the accepted quota is 800 tons and concerns only Italy), it means 50 percent tariff cuts for Czechoslovak exporters. The agreement was extended for another 2 years with the proviso that the quota remain at the current level, but the Czechoslovak demand that it be raised by additional 200 tons may be renegotiated in the second half of 1984.

Furthermore, the possibility of dispatching EEC experts to the CSSR to decide whether prime quality Czechoslovak beef conforms to the EEC norms and, if so, whether customs reductions granted at present only to the United States, Canada, Argentina, Uruguay and Australia should be granted for its imports. In the EEC exported fresh meat is subject to duties and in addition to 80-100 percent balancing taxes. Under such conditions there is only one option left--to apply for deliveries within the EEC annual balances or the GATT quota. As for the former, the EEC Council specifies a quota of frozen beef for the processing industry for every year (it was 50,000 tons for 1984), which is fully or partly exempt from the balancing taxes and partly also from customs duties. As for the latter, which the CSSR also tries to use to its advantage, annual quotas announced within the GATT (50,000 tons of boneless meat) are fully exempt from the balancing taxes and are subject only to 20 percent customs duties.

#### Limited Quantities

According to the GATT, limits on quantities may be applied only where the General Agreement expressly permits this to be done (art XI, para 1; art XI, para 2; arts VII and XIX) and only on a general basis, in other words, against imports from all third countries. Contrary to that provision, the EEC had applied against the CSSR numerous restrictions on quantity, which is against the obligations stemming from the GATT. That has taken place even though the statutes of the CSSR as one of the GATT founding members had not been modified by any obligations adopted at a later date. Several stipulations which have not been revoked are not applied against every third country. This procedure is based on regulations No 3420/83 of the EEC Council of 14 November 1983 concerning "regulation on imports of products from countries with state trade which have not been decontrolled in the community." Import quotas for several Czechoslovak products have been announced for 1984. According to individual countries, their numbers are as follows:

Benelux	32
Denmark	8
FRG	33
Greece	30
France	15
Ireland	5
Italy	59
Great Britain	6

(and in addition 17 textile items)

The share of exports subject to restrictions of quantities in total Czechoslovak exports to the EEC represents approximately 20 percent; however, in fact the effect is not always restrictive (Czechoslovak manufacturers do not exhaust several categories, which remain unused). Restrictions of quantity affect especially a wide line of industrial consumer goods, for instance, tires and inner tubes, electric motors, cables and transmissions, the so-called white goods (refrigerators, freezers, washing machines), furniture and floor coverings, sports, hunting and camping goods, lead crystal, utility glass, glass bricks and sheet glass, household porcelainware, floor and wall tiles, insulating materials, walking shoes, etc. Another category consists of chemical products.



Although on the whole those are not our main export items, this situation cannot be ignored. Experience has shown that the procedures against such discriminatory measures on the grounds of the GATT are not producing any practical results. The sectoral agreements concluded thus far have brought certain advantages for Czechoslovak export, and the conclusion of additional sectoral agreements on selected items of Czechoslovak export would help create more favorable trade-political conditions for Czechoslovak export.

#### Antidumping Measures

The current development in developed industrial countries is marked by protectionism, which is gaining momentum. In other words, it is an effort to protect domestic production not only by a system of tariff and nontariff hindrances but also by legal means based on the demand that the so-called loyal trade practices be implemented; in most instances their criteria are stipulated by national legislature. Part of it is a legal antidumping regulation, whose internationally recognized basis is Art VI of the GATT and the subsequent antidumping code of 1979, also signed by the CSSR.

From the perspective of Czechoslovak interests the problem of defense against dumping is focused almost exclusively on the EEC, which in recent years (since 1980) opened against Czechoslovak foreign trade organizations 18 procedures, which is approximately 10 percent of all actions opened against third countries. Of this total, one-half were socialist countries. When looking for evidence of dumping, the EEC Commission considers damage to domestic industry first, and uses prices only as a supporting argument.

Nevertheless, in view of the long-term developments, Czechoslovak trade with the EEC will remain important to us and we will have to find new ways to benefit from contractual arrangements and remove the discriminatory elements which stand in the way of the further development of relations.

9004

CSO: 2400/70

NEW ASPECT OF INTERNATIONAL INDUSTRIAL COOPERATION

Prague ZAHRANICNI OBCHOD in Czech No 7-8, 1984 pp 21-22

/Article by Mikhail B. Ryzhkov: "New Aspect: International Industrial Cooperation"/

/Text/ Temporary association of companies for the purpose of fulfilling extensive programs has become an essential part of world economic relations. The practice of organizing interenterprise associations for capital investment when building projects on the territory of third states, particularly the developing countries, has spread considerably in recent years.

At present there are many reasons which make it necessary to join the forces of several organizations. For example, energetic competition in capital investment forces the investor to organize associations in order to withstand the competition. Furthermore, the increasingly growing requirements of technology, the expanding scope and reduction of schedules for the completion of the plans, the need for enormous one-time investments call for the establishment /of associations/. All this requires that several specialized companies, including the major ones, which often cannot fulfill the orders by their own forces, participate in the construction.

In the situation of economic instability in the entire capitalist system and of instability of the ruling regimes in a number of developing countries, construction companies hesitate to take upon themselves the risk stemming from the construction of a large project. When acting in partnership, capitalist firms as a rule divide their risk among themselves, in proportion to the amount of deliveries. In many instances the established association is not an independent "legal person," which makes it possible to adopt a more flexible organizational form of cooperation. The association may be dissolved without any difficulty after the completion of the construction project, or it may continue as a partner in a mixed company with capital participation of the host country. It should be noted that all such measures serve to protect the largest Western organizations whose managing, organizational and financial structure is best adapted to "work" with foreign partners and organizations of temporary consortia.

The trend to organize new international associations is bolstered by the fact that companies in many developing countries have found sufficiently valid

possibilities for participation in major construction programs on their own territory with extensive partnership of foreign companies. The host country tries to utilize local technology and labor forces as much as possible. Of particular importance is the fact that the increasing political and economic independence of the developing countries helps them conduct a policy that diversifies the suppliers of the equipment, so as to prevent technical dependency on one or more foreign companies.

The factors mentioned above correspond with the structure of new international relations of cooperation. In particular, countries that have liberated themselves from colonial oppression are trying to expand their joint construction projects on their territory with the participation of organizations from the socialist countries. Opportunities for this cooperation stem from the growing standard of economic development in socialist states, especially in the most progressive branches--for instance, Czechoslovak machine engineering industry manufactures technology with world parameters. In addition, the success of the Hungarian People's Republic in the pharmaceutical industry, of the GDR in the chemical industry and of Romania in petroleum processing is considerable. Power generators from the USSR are supplied to many countries and have been well received. All that encourages the organization of associations of companies from socialist countries which act as a "collective contractor" in this or that developing country. Thus, for example, the USSR, the Hungarian People's Republic and the Polish People's Republic are building a thermoelectric plant in Isfahan, Iran.

The difficult location in the mountains and the lack of adequate water resources for the needs of a power plant in Iran led to the installation of a special air-cooling system. The plan, supplies and assembly of this air capacitor equipment were made by the Hungarian Transelektro company, a top world manufacturer of such equipment. A major part of the equipment and works were supplied by the Tekhnopromeksport association of the USSR; the Budimex organization of Poland is providing the construction and assembly works.

When building industrial facilities in developing countries, the socialist countries are cooperating in a number of cases with Western companies. Cooperation in which socialist, capitalist and developing countries participate is called "trilateral." The developing countries which in many ways are traditionally oriented toward Western technology and technical standards often participate. Thus, for example, when the Jorge Lacerda hydroelectric plant with 250 MW capacity was built in Brazil by the Czechoslovak Skodaexport PZO /foreign trade enterprise/, the participation of the West German Deutsche Babcock company was one of the preconditions on which the customer insisted.<sup>1</sup> The Skodaexport PZO provided 70 percent of supplies, Deutsche Babcock, one of the largest engineering firms in the FRG, took over 30 percent of the value of the facility. In addition to the supplies of the equipment, the company was responsible for the plan, assembly, and putting the steam equipment into operation. Deliveries by the Skodaexport PZO were financed according to an intergovernmental clearing agreement between the CSSR and Brazil and all deliveries by Deutsche Babcock were financed by long-term credits granted under commercial conditions. Both partners had previous experience from their joint cooperation in the 1960's and therefore many organizational and technical problems were ironed out in advance and difficulties, if any, were only minor.

The firm from the capitalist state usually benefits from the greatest opportunity to participate in trilateral cooperation when it has the necessary headstart not only in supplies but also in planning and assembly of the equipment that is not available in the socialist countries. Here the financial and credit assets of the Western partner are often used. During the slump in production in the capitalist world, Western companies relatively readily agreed to cooperate with the socialist countries whose equipment was found efficient and has a future potential. Thus, for instance, firm links have been forged between the Energomasheksport association of the USSR and the major Western companies Braun Bowery, EFT and Mannesmann, thanks to which they jointly constructed a hydroelectric plant in Purnari and a thermoelectric plant in Cardia, Greece.<sup>2</sup> Another Soviet organization, Tekhnopromeksport, is building in Greece the Agios Dimitrios thermoelectric plant with 600 MW capacity together with the Elektrotechnik foreign trade enterprise of the GDR as well as with the IWT and Mannesmann companies (FRG) and Metka (Greece).<sup>3</sup>

On the basis of an agreement between the Technoexport association of the CSSR and the Technipetrol company of Italy, they are jointly building petroleum processing plants in Salah-al-Din, Iraq, and Hims, Syria. It is anticipated that on the basis of an agreement between the general directorate of Chepos in Brno and the Clockner company of Duisburg several facilities for the production of ammonia and urea will be built and a sugar plant in Indonesia will be equipped. According to an agreement between the Skodaexport PZO and the Voest Alpine corporation of Austria, with the participation of the West German WWS Company, a thermoelectric plant is under construction in the United Arab Emirates and the construction of several power plants in Latin America is projected.<sup>4</sup>

It should be stressed that in recent years the socialist countries and certain capitalist states tried to foresee and seize contractual and organizational opportunities for cooperation. For that reason in particular several inter-governmental agreements between the socialist and the capitalist countries have already discussed the possibility of joint planning and construction of industrial facilities in third countries. The conditions mentioned above have been further specified in the so-called framework agreements between the partner companies and specific plans and conditions for cooperation were outlined. Certain socialist countries, such as the GDR, have special conditions regulating the participation of foreign trade organizations in various associations with companies in capitalist countries and for negotiating the framework and the forms of that participation and the character of relations between the partners.

The widening range of cooperation between the socialist and the capitalist countries in building facilities in the developing countries confirms that such cooperation is efficient. Socialist organizations contribute to it elements of relations which are characteristic for socialist society.

The economic and financial situation of many developing countries—even of the oil-exporting countries—has recently rapidly deteriorated. Therefore, financing conditions are extremely important when concluding contracts with foreign partners. In that connection it is well known that the participation of organizations from the socialist countries in the construction of projects in the developing countries involves grants of advantageous credits. Thus, for example,



the generally recognized indicator of favorable credits (grand-element) for credits granted by the USSR in recent years amounted to 45-50 percent.

Moreover, for partners from the developing countries it is a significant fact that the socialist states take into consideration their high foreign indebtedness and the difficulties in marketing products of local industry, and those countries are offered an opportunity to pay back with deliveries of their traditional export products.

After serious assessment the Western partners readily agreed to cooperate with organizations of the socialist countries because partial repayment of the value of the project under favorable conditions or with the customer's products makes the joint offer substantially more competitive. Obviously, this will also contribute to the further development of trilateral cooperation.

The above-mentioned cooperation helps upgrade the technical standard of the basic sectors of the economy in the developing countries, and at the same time it makes it possible for them to open additional markets for sales of their products. The socialist countries understand their wish to develop their own investment base and to utilize their local resources. The aid of the socialist countries in training local work forces and in including an increasingly broad range of local companies in construction plans is also directed toward that goal. The services they render are usually cheaper than foreign services. By the same token, they often master the latest methods of construction and also have efficient technology at their disposal.

In general, organizing international associations of companies offers their partners the opportunity to undertake the construction of industrial complexes whose value exceeds \$1 billion. Membership in the association forces the participants to complete the project in the shortest possible time--it is to their advantage. Naturally, serious problems do occur--one of which is the standardization of technology built by partners from various countries, i.e., coordination of the parameters. Several problems are connected with legal regulations of certain developing countries that prohibit the import of individual parts of equipment. Local construction companies and local manufacturers of equipment also do not always adhere to strict schedules for the project under construction, which obstructs the whole timetable of the operations. However, as experience has shown, with expanding cooperation and long-term contacts between the partners, such difficulties are being successfully overcome. All this confirms again and again that under certain conditions international cooperation in the construction of projects in young developing states is an effective means for the socialist countries to widen foreign economic relations.

#### FOOTNOTES

1. DEVELOPMENT FORUM BUSINESS EDITION, Geneva 1983, No 120, p 3.
2. ENERGO MASHEKSPORT, VNESH TORGREKLAMA 1983, No 16, p 30.

FOOTNOTES (cont'd)

3. "Vybudovano za ekonomické a technické účasti Sovetského svazu" /Built with the economic and technical participation of the USSR/, Moscow, MEZHDUNARODNYYE OTNOSHENIYA 1982, p 247.
4. CESKOSLOVENSKY ZAHRANICNÍ OBCHOD, Prague 1983, No 5, p 12.
5. "Vybudovano....," MEZHDUNARODNYYE OTNOSHENIYA 1982, p 290.

9004

CSO: 2400/70

## CSSR FOREIGN PRODUCT PRICE COMPARISON METHODS VIEWED

Prague ZAHRANICNI OBCHOD in Czech No 7-8, 1984 pp 18-20

/Article by Hugo Kysilka and Helena Zachystalova: "Methods of Technical-Economic Price Comparison of Czechoslovak Products With Foreign Competition"/

/Text/ Toward the end of 1983 the 164th session of the Council for International Economic and Scientific-Technological Cooperation discussed the proposal for the Joint Directive for the Procedure in Technical-Economic Interdepartmental Pricing of Czechoslovak Products by Comparison With the Products of Foreign Competitors (hereafter the Joint Directive) drafted by the Federal Ministry of Foreign Trade and the Federal Price Office with the engineering branches. The council adopted the decision to test during 1984 the procedures based on the Joint Directive on selected engineering products, a substantial part of whose production is designated for export.\*

The drafting of the Joint Directive was motivated primarily by the intent to gather accessible methodological principles for comparison mainly of engineering products in terms of their technical parameters and economic characteristics, as well as to amend such principles with the necessary criteria of utilization and practical application. The purpose of the gradual introduction of the Joint Directive in economic praxis is to turn the attention of the economic subjects to the competitive potential of our products and, in this connection, to factors that affect that potential the most--i.e., the effectiveness of innovations, the technical standard of the goods, internal costs and prices of the products, and the prices and marketing conditions in foreign markets.

This motivation proceeds from the realistic premise that the extent of the Czechoslovak economy's efficient integration in the international division of labor, determined above all by appropriate competitiveness of Czechoslovak goods, is one of the basic prerequisites for a balanced, proportional development of the entire economy. In this respect the implementation of this developmental tendency has become increasingly urgent. This follows also from the demands underscored in the Report on Expeditious Application of R&D Achievements in Practice, which in this context states: "At the same time, it is inevitable to

\*The approved text of the Joint Directive was published in CENOVY VESTNIK No 10/84 on 7 March 1984.

observe the development in the world and to judge our achievements critically according to global criteria. The criterion of quality of labor of creative workers demands that everything new and improved measure up to world standards. Our R&D base as well as our production must proceed from that demand. That is also the way to upgrade the competitiveness of our goods in foreign markets and to improve supplies to our domestic market" ("Eighty Plenum of the CPCZ Central Committee," Svoboda, Prague 1983, p 35).

The need to enforce higher efficiency and social efficacy in the area of technological development, and consequently in our integration in the international division of labor, is directly linked with the conditions for the further development of our society's production potential. For the Czechoslovak economy, foreign economic relations and their superior or inferior efficiency are a factor immediately affecting the creation and especially the use of national income, and thus also the conditions for the satisfaction of our social needs. The focus on these facts is all the more timely in a situation where major problems in the development of the Czechoslovak economy are connected with its inefficient integration in the international division of labor. This situation stems mainly from the fact that the structure and technical standard of our production programs, particularly in engineering, often react slowly and inadequately to changed conditions in foreign markets. That leads to continuous high requirements of materials in the process of replacement and to a low standard of the process of converting national labor into assets in foreign markets, above all because our production fails to adapt to the increasingly sophisticated demands of foreign markets.

The technical standard and quality of our products significantly affect the sales prices of our products in foreign markets. Here is a direct link between efficient R&D development and efficient foreign trade. Its practical expression is the competitiveness of our products, their ability to pass the test in competition with foreign manufacturers as well as to meet the demands of foreign customers. Various methods and a set of criteria have been gradually developed for assessing the competitive potential of our products.

Such assessments are based on a comparison of the technical standard and quality (as an expression of the standard and measure of the rationalization of R&D achievements applied in production), costs and prices, and of a set of additional commercial and economic factors. These approaches are based essentially on a synthetic concept of the process of creating values and social benefits of commodities according to the conditions of production and marketing. In principle this means a comparison of a set of parameters which characterize the technical standard of goods, mainly in terms of their utilization, with demonstrable national costs and domestic prices, with the price of the competition and the obtained (obtainable) price of Czechoslovak exports. Naturally, such a comparison must also consider the conditions in which the product is, or may be, sold in foreign markets (offer, demand, delivery and payment conditions, goodwill, service, supply of spare parts, marketing methods, etc.).

The purpose of the comparison is to determine the extent to which a product is capable of competing, i.e., to make a realistic economic decision concerning the adequacy of the price obtained (obtainable) in the conditions of foreign markets or as the case may be, of the proportionality of the national price with that price abroad.



Promptness is an important requirement for efficient utilization of such a comparison with the competition. For instance, if an assessment is made in the preproduction stages, it may be possible to influence innovative designs in a desirable manner, efficiently and promptly, and to enhance their effect in terms of the opportunities for future foreign trade. Additional comparisons, made ex post facto, may lead to certain changes in favor of competitiveness; however, they cannot essentially help fulfill the general plan as concerns greater efficiency of decisive innovations designed for exports.

At present Czechoslovak products may be compared with foreign competition from the technical-economic standpoint according to several practically applied methods. The Joint Directive specifies in detail the so-called Korter method and the point estimation; furthermore, the method of limits of profitability is also presented.

The basic premise for the application of those methods is the knowledge of data concerning comparable competitive products, especially the technical-economic parameters and prices. However, this requirement, which seems self-evident, is not always met. Prompt and up-to-date information on the competition, which may provide the main orientation in the direction of the technological development of products and their sales prices, is still lacking. Nevertheless, far more relevant is the fact that accessible data and information are not used to full advantage and systematically applied. By the same token, due to increasing demands on the quality of Czechoslovak goods tested by foreign trade, precisely such an approach is necessary in basic political-economic documentation.

The Korter method is based on the definition and expression of relations between the technical-economic standard of products (defined by a set of parameters) and the price demanded (earned) in foreign markets. In the CSSR this method was processed specifically for software use with a set of models which make it possible to use automatic computers for its application. It proceeds from the premise that the relation of the price obtained or projected for Czechoslovak exports to the prices of foreign competition should be in harmony with the relations (differences) of the technical economic standard of compared products. Comparison of the relations between the price and the technical-economic standard of compared products /as published/. The relations between the price and the technical-economic standard are compared on the basis of a set of technical and economic parameters of products whose relevance is differentiated according to various criteria (coefficients of relative significance) stipulated by expert assessment.

The Korter method may be used advantageously under the assumption that there are data available on the parameters, prices and commercial conditions of at least four or five comparable foreign products made by world competitors, which are then compared with a Czechoslovak product.

When applying point estimation, the principal parameters of the utility value of each product are defined; they express in technical and economic terms the main functional and operational attributes specific for that particular product. With this method it is desirable to have for comparison a set of prices and technological data of at least three competitive foreign products. The selection

of parameters and the determination of the scale of their relevance and weight in the price are made by expert assessment. A summary account of the correlation between the technical standards of Czechoslovak and foreign products and corresponding price relations is derived from expert point estimation of individual parameters of domestic products and products of the competitors.

Neither of the above-mentioned methods is applicable in instances of demonstrable difficulties in obtaining technical data concerning the competition, or in cases where, for example, only one comparable foreign product exists. Then, according to the Joint Directive, the so-called limit of profitability based on world prices may be applied. It is based on a breakdown and graphic description of relations between the price obtained by the CSSR for a certain exported product, its world price (converted to parity--CSSR all charges paid) and the domestic wholesale price and costs of that particular product.

As compared with other methods, the advantage of the Korter method is mainly in its relatively comprehensive character, which makes it possible to compare the technical standard of a specific product with the so-called average world technical standard, as well as the technical standard of the product compared with each other. The relations between the technical standard and the price may be derived by this method, and in this conjunction the competitive potential of Czechoslovak products in foreign markets may be assessed.

In view of a more extensive set of compared products, this method has an even higher information potential. Computer processing of the data makes it possible to amend the initial information and to repeat the calculation in relation to changing inputs. The results may be obtained promptly and with relatively little effort.

The disadvantage of the Korter method is the potential effect of the subjective factor, for example, in determining the relevance of individual parameters. Furthermore, all the methods applied thus far have in common the problem that in addition, the so-called nonmeasurable parameters and commercial condition for marketing the goods are projected in the calculation. The fact that Korter method demands a number of initial data (which, in view of the applied mathematical methods, nevertheless enhance its information potential) may be only conditionally termed as disadvantageous; the knowledge of information concerning the competition should become part of the general managing operations of both individual VHM's /economic production units/ and foreign trade organizations, as well as an expression of their efficient cooperation.

The advantage of point estimation is in its simplicity. At present it is already rather widely accepted, especially for comparison of mechanisms that may be characterized as "total productivity." On the other hand, the less copious data, the manual method of their processing, along with a higher share of subjective estimation and the noncomprehensive character of its results, may distort its information potential. The method of limits of profitability is based in fact only on comparison of the prices, and disregards technical-economic parameters. In individual cases the range of its application and information potential may be quite limited.

The calculation and applications thus far indicate that when applying the Korter method attention must be focused on the following issues:

1) selection of comparable products and their parametric description, including the so-called nonmeasurable parameters. The objective here is to select for comparison with certain Czechoslovak products such products made by foreign competition that satisfy the same type of consumers' needs. By the same token, more comparable products enhance the information potential of this particular method. For that reason, it is always necessary to secure the greatest possible assortment of comparable foreign goods, especially those of superior technical standard. As long as average products on the whole are chosen for comparison, then naturally the resulting characteristics are not very challenging.

When preparing input data, the parameters of the selected goods are divided into the so-called primary and secondary parameters, so as to reflect the most relevant aspects of use value of the products from the consumer's standpoint. These parameters must be quantifiable by certain physical variables (output, productivity, carrying capacity, etc.). The importance of those parameters--in terms of their effect on the amount of the price--is differentiated according to various criteria. The same parameters (with different amounts in specific, measurable units) must be known for the entire set of comparable products.

The so-called nonmeasurable parameters which express use values of products that cannot be quantified at all or that are very difficult to quantify and which in their sum total may greatly affect the price (prompt delivery, services, design, special finish of the product, safety of operation, etc.) are expertly assessed by the method of point estimation. So long as any of those parameters is related to primary parameters, it is possible to operate with the sums of points as with an aggregated parameter and they may be included in automatic processing. If it does not affect primary parameters, point estimation is used in assessing the results to correct the calculated characteristics of the comparison:

2) Up-to-date information and comparability of the data on the prices of compared products made by foreign competitors. Experience has shown that, as concerns markets in nonsocialist countries, the most effective comparison is made on the basis of prices with economic contents approaching the substance of prices of commercial parity. Of course, in this conjunction occurs a problem that usually similar prices of the competition are not immediately known, and therefore it is inevitable to transpose available data on prices of the competition, which may have the character of offer or retail prices, to values corresponding to commercial parity. It is appropriate to apply for that purpose methods currently used by some foreign trade organizations, based on recalculation (retrocalculation), which eliminates from retail consumers prices mainly the commercial margin of profit, taxes, customs, bank payments, local transportation, and so on. In cases where it is appropriate to make the comparison on the basis of FOB prices, additional costs of the type of direct commercial costs abroad must also be considered in recalculation (retrocalculation). All data on prices must be used for a roughly identical period of time. Comparisons for the purpose of verification of pricing conditions vis-a-vis the CEMA market must then

consistently observe regulations applicable for the setting of contractual prices. In general, attention must be focused on the method for conversion to domestic currency units;

3) Knowledge of the trade-political and commercial situation in which the given products are marketed in a specific territory, such as the conditions of offer and demand, the method of sale, goodwill, etc. In view of their considerably changeable and individual character, however, as a rule they cannot be directly introduced in automatic processing. The set of data on such condition is therefore used for corrections of the results of comparison and especially for comprehensive assessments of the results of comparison from the viewpoint of commercial-economic factors of marketing.

Mathematically, the Korter method is a combination of correlation, regression and cross-section analysis. The comparison of technical parameters of the products is based on their relation to the so-called average world technical standard, which is determined by computer by means of regressive function from the data on parametric description of the compared products. The measured average of the differences against the average world technical standard then represents the characteristics of the technical standard of the product in question. In the same way, the so-called average (theoretical) world price and other price characteristics are calculated from price documentation by means of regressive function.

The projections made by the Korter method are standardized in the form of systems containing, in addition to control copy of the information, correlation matrices and calculated results of comparison for every product. Most important are the following:

--the coefficient of the technical standard (TU); if this amount is higher than 1, the technical standard of the given product is higher than the average of the compared set, and vice versa. In general, the technically best, average and worst product in the set and the position of the tested product among others may be derived from the differences;

--price for orientation,<sup>\*</sup> which corresponds mathematically to the technical standard of a specific product and which indicates the approximate range for the quoted, obtained or projected price of that particular product (in comparison with the technical standard and prices of a set of products made by the competition);

--the technical-economic standard (TEU), which is a summary indicator converted as a share of the price for orientation and the actual price (i.e., the obtained projected or quoted price). It represents the extent to which the offered technical standard of the product has been evaluated by the market. For instance,

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<sup>\*</sup>Naturally, these prices must be corrected by the already quoted data on the trade-political and commercial situation of marketing in a given territory or, as the case may be, by the set of the so-called nonmeasurable parameters (as long as they have not been included in automatic processing).



if it exceeds 1, there is a possibility (according to calculations) that the product in question may command a higher price because of its overall technical standard.

The Korter method for technical-economic comparison of the parameters and prices of domestic products with the competition may be advantageously applied in several ways.

For foreign trade operations the results of comparison may serve as a direct base for negotiations of prices or, as the case may be, as an incentive for a number of specific measures, especially in relation to domestic production as well as to foreign markets. A corrected orientation price may serve as one of the points of departure in contractual negotiations with foreign partners; in case of marked differences between its amount and the price actually obtained for sales abroad, it is possible to concentrate on problems of improving commercial operations and optimization of obtained foreign prices. The application of methods of comparison with the competition, however, calls in advance for thorough uptodate knowledge of the markets and of the competition, and poses great demands on the operation of trade departments, representatives and commercial and economic sectors of foreign trade organizations.

In terms of the technical development, comparisons may serve not only as mechanisms for the estimation of the future or current technical standard and quality of our goods, but above all for prompt information on leading world trends in the development of science and technology. Thus, it may also help influence potential directions of partial or comprehensive innovating and structural changes. The methods and procedures outlined here may help upgrade the technical standard of our products or, as the case may be, consider whether the current innovative objectives are equal to the demands of foreign markets. Experience from the testing of the Joint Directive thus far has shown that the results of calculations of comparisons may also be applied when assessing--or correcting--the technical parameters of Czechoslovak goods (for example, in the Detva Heavy Engineering Works national enterprise, in the case of the UNC 060 loader).

In the setting of domestic prices, the results should serve as a realistic argument for the testing of the calculated standard and of the relations of proposed price limits and the set of wholesale prices in relation to the projected or obtained foreign prices of our goods. This offers one of the ways to enforce desirable objectivation of a domestic price system and to create conditions for a more consistent and efficient linkage mainly of relations between domestic and foreign prices.

In its sum total, the application of all methodological procedures of comparison presented here should--and in fact may--help improve competitiveness primarily in the most important export sectors. By the same token, this means to improve competitiveness as the sum total of maximum valorization of national labor and to replace gradually the earnings from higher exports of materials by commanding higher prices. This should be enhanced by summary assessment of the results of comparison, so that they may realistically contribute to the most efficient orientation of technological designs at the lowest costs and toward the objectification of domestic and foreign prices.

## Summary

At present, the application of methods of technical-economic comparison of Czechoslovak products with foreign competition is especially urgent. Its purpose is to enforce gradually in managing operations economically logical approaches which should be a natural factor in decisionmaking in appropriate sectors and levels of management and which would influence in a coordinated way the technical, pricing and commercial points of view in the direction of greater efficiency of our national labor. Their enforcement, observation and gradual interconnection with the economic mechanism could, and should, help provide ground for the achievement of more efficient integration of the Czechoslovak economy in the international division of labor.

9004

CSO: 2400/70

## IMPLEMENTATION OF SET OF MEASURES AFTER 1985 OUTLINED

Prague HOSPODARSKE NOVINY in Czech No 41, 1984 p 1

[Article by Eng Vaclav Vertelar, deputy chairman, State Planning Commission: "Stress on Intensification; Preparations for the 1985 Plan"]

[Text] At its 10th Plenum the CPCZ Central Committee set the goal of achieving this year at least a 3 percent increase in national income, thereby assuring annual growth of the economy in line with the directives of the 16th Party Congress, and a further increase in economic efficiency.

### Building on Positive Performance

The development of the economy and the results of 1983 plan fulfillment and during the initial months of this year have shown that it is possible to expand and strengthen positive trends during the implementation of the state plan for 1984. For this reason the CSSR Government increased some of the targets of the state plan in May of this year and established priority tasks for its overfulfillment so as to assure the above objectives set by the 10th CPCZ Central Committee Plenum.

The following strategy was adopted:

--toughening state plan targets, in particular tightening limits on fuel and power consumption by almost 1 million tons of standard fuel and increasing targets for the production of highly technical sophisticated products;

--setting priority objectives that are to be reached through worker activity: these include an increase in labor productivity of roughly 1 percent in excess of the existing plan target, a reduction in material costs of 0.5 percent from the current plan target, and an increase in deliveries to consumer goods inventories of Kcs 1 billion in retail prices;

--a combination of the two above paths; this includes raising the differential indicator for exports to nonsocialist countries by a total of 1.5 points over the planned figure, with a 2 percent increase set as a priority task, and increasing the extraction of brown coal by 900,000 tons over planned levels, with a target goal of a 1.1 million ton increase.

The foregoing involves basically a tightening of qualitative indicators combined with increases in the production previously planned for this year. In the processing industries, however, this applies only on the condition that no additional power, raw material or material inputs or investment resources be required in excess of the allocations and constraints already established in the 1984 state plan, and that production be designated for use either for export or the domestic market.

Developments to date indicate that it is feasible to fulfill most of the established priority tasks as outlined in the resolutions of the 10th CPCZ Central Committee Plenum. Industrial production is increasing more rapidly this year and qualitative indicators are improving. Both material costs and wage requirements have declined, while labor productivity has increased. Exports are increasing faster than imports. Among other things, this is making it possible for us further to reduce our indebtedness to capitalist countries.

The results that have been achieved in resource formation will make it possible to fulfill a fundamental goal of the 16th Congress: maintaining the current relatively high standard of living, improving it and increasing the social guarantees of the population. At first glance this does not seem to be too difficult a task. No quantitative growth is promised. The most important fact to keep in mind is that the maintenance of the current standard of living is much more difficult, or more costly if you will, than in the past.

The performance of the economy is making it possible to fulfill the foregoing task of the congress and in some areas even significantly to overfulfill 5-year plan projections. Personal consumption has increased as a result of higher wages and increased supplies of consumer goods on the domestic market. The costs for education, health care and social security are turning out to be far in excess of the plan. This is not a bad record, especially in comparison with the rest of the world. There are not many countries which have been successful in recent years in assuring smooth economic growth and reducing indebtedness while at the same time improving living standards and strengthening the social guarantees of the population, providing full employment, etc.

#### Taking Firmer Steps To Remedy Shortcomings

Increased attention must be paid in the remainder of this year to the vigorous elimination of long-standing shortcomings which could turn into serious obstacles to further intensive development. In evaluating the development of the national economy and plan fulfillment, we cannot attach excessive weight to any particular indicator. We must evaluate them comprehensively.

For instance, even though the planned growth rate for industrial production has been exceeded by more than 50 percent, and that for construction by more than 65 percent, enterprises are not fulfilling all the indicators



which have been established for the evaluation of plan fulfillment. The plan is not fulfilled evenly throughout the year in line with the schedules in existing contracts. Increases in quality and technical-economic sophistication are not keeping pace with needs. This is evident in foreign trade as well, where we are not receiving the prices for our products projected by the plan. Likewise, the value of deliveries to the domestic market has been lower than planned. This all indicates that there are shortcomings in the product mix, quality, and sophistication of goods. Certain structural objectives are also not being reached in the development of production. The percentage of power- and raw materials-intensive sectors is higher than planned both in production and in deliveries of products for foreign trade. We have been unsuccessful in meeting targets for reducing fuel and power consumption. Schedules are not being met for the start-up of new facilities, and those that do begin operation are slow to reach their designed performance specifications.

The elimination of these and other shortcomings is an important precondition for increasing the level of intensification and the fulfillment of objectives in upcoming years.

#### Plan Preparation for Next Year

In accordance with current developments, the CSSR Government has increased plan targets for 1985 as well in the interest of fulfilling and in some cases overfulfilling targets for the entire 5-year plan.

Economic production unit [VHJ] draft plans for 1985, and to some extent sectoral plans as well, fail to meet the established targets as they have been presented. Shortcomings from past years are being repeated. VHJ's, for instance, have again seriously underestimated projected plan fulfillment for this year. Efficiency objectives have not been met, which in turn has meant that resource formation and the way that production is structured do not correspond to our needs, especially those of foreign trade. We need to begin the construction of 50 percent more capital investment projects than are feasible, given the available resources.

We have to work together to resolve these matters in the upcoming weeks. We are aware that the tasks for next year are demanding. We cannot, however, let up in their fulfillment, both because our economy has the potential to fulfill these targets and also because the targets are essential to the assurance of ongoing satisfactory growth, essential so that we can keep pace with the rest of the world.

Results that have been achieved indicate that we are having success in implementing the objective of gradually speeding up economic development. After an increase of 0.6 percent in gross national income in 1982 and of 2.8 percent in 1983, it is estimated that this year we can attain an increase of at least 3.0 percent. There are no objective reasons why this trend cannot be continued next year as long as future increases in resource formation are based even more than before on intensive factors.

The capability of efficiently satisfying requirements for specific production applications, and above all of assuring operative changes in the structure of production and in the focus of production programs so as to cover fully the quality and volume requirements on domestic and foreign markets, will be critical for the achievement of projected increases in industrial production next year. This is especially true of the machine building sector. Because of difficulties in selling certain machines abroad, stress is increasing on deliveries of machinery and equipment for domestic capital construction, but without commensurate results so far.

The objectives and constraints on future increases in production have been clearly established in a resolution of the 10th CPCZ Central Committee Plenum: "Production in excess of planned levels in processing sectors must be obtained by increasing the value added to available resources and must adhere to constraints on the use of limits of raw materials and power. It is especially important to assure the efficient production and sale of products for export, to improve the performance of capital construction projects at critical sites (namely those that are scheduled to begin operations this year and next), and to improve deliveries in excess of the plan of selected items to the domestic market. This also includes products related to the improved assurance of state priority and rationalization programs. In raw material- and power-intensive sectors and branches, the focus must be primarily on substantially increasing the value added to production." The foregoing guidelines must serve as the starting point for further work on the plan for next year.

In agriculture and the food industry attention must be focused on the greatest possible addition of value to good harvests, on the favorable development of concentrated fodder consumption, and on regulating the level of livestock production to correspond to meat consumption goals set by the national economic plan with the objective of increasing self-sufficiency and building up both state and working supplies to the greatest extent possible.

We must approach the further management of capital construction very responsibly. There continues to be an excessive amount of incomplete construction projects, construction schedules are long, and the efficiency and conceptual justification for new projects frequently present problems. We cannot back off from the requirement of demonstrating the efficiency, necessity and preparedness for new construction projects, indeed the opposite must be the case. Regulations must be made much more strict and modified to increase incentives for efficient reconstruction and modernization. This is the only way to create the necessary opportunities for strengthening investments in the nonproduction sphere, assuring the construction of environmental projects, and resolving the housing problem. It is not possible at one time, or even in a single 5-year plan, to satisfy everyone. What is needed are well-intentioned requests. This is why it is necessary to choose very carefully the order in which individual projects will be carried out and to establish priorities.

Particular attention must be devoted to issues of managerial efficiency in all sectors, and the speeding up of the implementation of the results of research and development. These are the foundations of an expanded intensification policy, which in turn is the basis of work on plan formulation for next year. Measures must be formulated and implemented to maximize the conservation of fuel, power, metals, and raw materials. Pressure must be increased on the economic mechanisms in this area. This is essential not only to assure further dynamic economic growth, but above all to assure the ongoing growth of the standard of living and increases in the social guarantees of the population, which are the fundamental goals of our efforts.

9276

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## LOW RETURN ON IMPORTED MACHINERY CRITICIZED

Prague HOSPODARSKE NOVINY in Czech No 41, 1984 p 5

[Article by Eng Petr Rejfir, State Bank of Czechoslovakia: "Use of Machinery From Nonsocialist Countries; Inertia That Costs Millions"]

[Text] One often encounters the question of why so much attention is given to machinery imported from nonsocialist countries. After all, they are identical capital assets to those produced domestically or imported from socialist countries. The answer is simple. In addition to lost production, which is actually the same for all capital assets, there is additional damage when imported machinery sits idle, namely, the reduction or full loss of warranty rights and, above all, high foreign currency losses for interest. Last year, losses on machinery and equipment not put into operation on schedule were Kcs 117.5 million. The figure for the first 3 years of the current 5-year plan is Kcs 54.9 million.

The bank becomes interested in imports from nonsocialist countries at the initial stages of capital construction, during the design and permit-obtaining stage of a project. Later on we release foreign currency resources to cover the cost of these imports, monitor the development of the major preconditions for making the imported machinery operational, and evaluate its fulfillment of projected technical-economic parameters and other contributions.

### In Some Places it Works, Others It Does Not

The results of a bank analysis of the utilization of imported machinery and equipment for capital investment are assisting in uncovering and eliminating serious shortcomings in this area. In the Sixth 5-Year Plan the average volume of imports that was not made operational according to established schedules and imports left for a long time in warehouses amounted to Kcs 4.2-4.6 billion. This figure was lowered significantly in 1981-1983, and last year amounted to Kcs 775.1 million.

This is both the result of measures related to capital investment adopted during the preparation and execution of the Seventh 5-Year Plan, and an outcome of the systematic attention devoted by managerial agencies to this issue. In 1983 the People's Control Commission of the CSSR

conducted an investigation in selected enterprises, economic production units [VHJ] and sectors with the objective of determining just how imported machinery and equipment is installed and put into operation. The results of this inspection fully confirmed the conclusions of the bank, which is monitoring machinery use and taking measures against any tendencies toward inertia in this area. Interest rates are being increased on loans made for the purchase of machinery that is now standing idle, measures are being taken in the area of foreign currency incentives, and further requests for the release of foreign currency resources are being discouraged from those organizations which have shown in the past that they have used imports ineffectively.

Such measures, however, may be imposed only after it has been determined that imported equipment has not been made operational according to schedule. This means that the measures have limited effect, since they can be used only to reduce the time in which a given piece of equipment remains unused. It follows that a critical condition for the timely utilization of imports is to establish a link between importing schedules and the preparation for construction projects. The following examples indicate that this is true for large projects as well.

The Humenne Chemlon plant has conducted several extensive investment projects requiring large numbers of imports from nonsocialist countries. Organizational preparations of both the construction portions and other deliveries were very professional and precisely coordinated with deliveries of machinery and equipment from abroad. The result was the timely and quality startup of production and the fulfillment of all of the technical-economic parameters of the project.

At the Jablonec Liaz national enterprise, an imported automated forming and casting line with a value of Kcs 60 million has been installed at the Ostasov foundry as part of an extensive modernization of the entire facility. Despite the fact that the project was carried out during full foundry operations, preparations were made so that a complex piece of equipment could be successfully assembled on a very tight schedule. Only 15 months passed between the signing of the contract with the foreign supplier and the beginning of trial runs of the line. The facility is producing the designed volume of products of the requisite quality.

In contrast, the installation of similar equipment at the newly constructed foundries of the Gottwaldov Precise Machine Building Plants, at Krnov Strojavit and at the rebuilding of the Hronec foundry has entailed significant delays in the start-up of operations of imported equipment, with all of the resultant negative consequences for the national economy.

This implies that a critical role in the effective utilization of the foreign currency resources released for the importing of machinery and equipment must be played by the senior managers of the investing enterprises, supplier organizations, VHJ's and sectors, above all by their active involvement in arranging for imports and in the assurance of



realistic deadlines for construction and technical preparations. Last but not least they must be involved in the ongoing evaluation of the status and changes in the requested delivery time for the imports.

#### The "Pressing" Need for Imports

In addition to putting imported equipment into operation, we have been monitoring the levels of achievement of designed technical-economic parameters and contributions, and have been evaluating this data since 1981.

Contributions are evaluated for imports with acquisition costs in excess of Kcs 0.5 million and for all imports acquired with loans repayable in foreign currency. The evaluation is made by comparing projected and actual contributions.

Since 1980 we have evaluated in this way 3,350 imported items with a value of Kcs 23.445 billion. The value of the imported machinery which did not perform up to its planned parameters was Kcs 7.158 billion, or 30.6 percent of the value of the imports being evaluated. The value of the machinery that did not perform up to design parameters on multiple occasions was Kcs 2.560 billion. This overview makes it clear that in many instances any expended foreign currency resources may be considered as a partial or a complete loss for the national economy.

The necessity for importing this or that piece of machinery is usually justified by a potential investing organization by the fact that either no domestic alternatives exist that are available by the required deadline, or that domestic alternatives do not have equivalent performance characteristics. We then determine that the imported equipment was not installed on schedule anyway and that it is not performing up to its design specifications.

#### How Much for the Balance of Payments

The analyses that have been conducted make it possible to study the relationship between imports related to capital construction and the balance of payments. Although the following comparison will not be exhaustive, it indicates that the contributions that have been gained are not commensurate with the foreign currency resources that have been expended. For instance, to increase exports or decrease import requirements by Kcs 1 million it is necessary to invest Kcs 1.6 million in imports purchased with foreign currency repayable loans along with Kcs 10.6 million in other imports; to save 1 ton of standard fuel, Kcs 890,000; to save 1 megawatt hour of electric power, Kcs 518,000; and to eliminate one job, Kcs 5.8 million.

At the same time, it must be taken into consideration that overall performance often influences imports, the contributions of which greatly exceed the achieved average. For example, in 1983 a single project at the Krulupy nad Vltavou Kaucuk national enterprise accounted for Kcs 260.6 million, or 41.2 percent, of a total increase of Kcs 553.1 million in exports achieved through the acquisition of a foreign currency repayable loan. The result is similar for other imports that were evaluated in 1983.

The low efficiency of invested foreign currency resources in relationship to the balance of payments may also be inferred from annual reports on the final evaluations of construction projects. For instance, at 60 evaluated industrial construction projects that were completed in 1982, with total budgeted costs of Kcs 27.5 billion, imports from nonsocialist countries accounted for Kcs 4.8 billion. Imports represented roughly 35-40 percent of the total value of equipment for these construction projects. The foreign currency contribution to the balance of payments is as follows: production at the new facilities required additional, noninvestment imports from nonsocialist countries in the amount of Kcs 738 million, while the increase in exports generated by these projects was Kcs 1.454 billion, making the net foreign currency contribution Kcs 716 million annually.

This result was influenced significantly, however, by two projects, which were not expected to generate any exports at all to nonsocialist countries. These are the Letnany Avia national enterprise construction project, which had annual exports of trucks in the amount of Kcs 400 million, and exports of cellulose from the Steti Sepap concern enterprise in the value of Kcs 214 million. If one does not include the export contributions of these projects, the remaining 58 inspected projects have to split up the remaining Kcs 102 million of foreign currency contributions per year.

In evaluating the contributions of imports from nonsocialist countries, one also encounters instances of excellent results. Imports have had a very positive impact on certain wood-processing operations, such as the production of chipboard, as well as in the textile and glass industry, the components base for the electronics sector, etc. At present projects are being drafted and implemented for improving the utilization of crude oil products as well as other chemical industry projects aimed at reducing noncapital investment imports from nonsocialist countries. It appears that this can serve as a good base for the further focusing of investment policy on the achievement of maximum effectiveness, above all for those projects which require higher percentages of imports, licenses and technology from nonsocialist countries.

One more statement in conclusion. Under the conditions of our economy it is necessary to concentrate on those imports which can have a demonstrated influence on increasing the technical and technological sophistication of production and products, and on those which can assist in overcoming a certain amount of lag in certain sectors behind the levels achieved in other industrially advanced countries, thereby contributing to improved prices for our products on foreign markets.

7296

CSO: 2400/83

## MINISTER COMMENTS ON NEED FOR, SUPPORT OF CHANGES

Prague HOSPODARSKE NOVINY in Czech No 43, 1984 pp 1, 7

[Article by Eng Eduard Saul, minister of metallurgy and heavy engineering of the CSSR: "We Require and Support Changes"]

[Text] The fortunes of our national economy are to a great degree dependent on the development of metallurgy and heavy engineering and their successes, as well as the arduous, responsible labor and skill of the metalworkers and machinists. The metallurgy, engineering, and electronics complex is also largely responsible for increases in the social productivity of labor, for progress in research and development in society and for the protection and improvement of the living and working environment. The 10th Plenum of the CPCZ Central Committee in April of this year critically evaluated work up to this point and the successes and failures of the engineering-metallurgy complex and laid out tasks for the complex for the next period. All branches of our ministry were given clear tasks for the final years of this 5-year plan so that they could achieve the basic goals laid out by the 16th Party Congress and also tasks which would significantly intensify planning for the next 5-year plan.

Ministerial analyses and results so far in the Seventh 5-Year Plan in the ministry have mainly confirmed the fact that the metallurgical enterprises and ore mines and enterprises of heavy engineering have coped substantially with changes in the economic conditions of development, especially with the regimen of strict limitation of production resources, mainly fuel and energy and imported raw materials, semi-finished goods and products. They showed that through concentrated efforts of the party and trade union organizations and management at all levels it is possible to activate the workers' initiative to an extraordinary degree and, which is important, to activate it in the desired directions of saving energy and metals, replacements for imported materials, speeding up the introduction of research and development results into everyday production, and overall completion of deliveries more thoroughly.



As a result of emphatic application of changes in the system of planning, financing, material incentives and internal enterprise khozraschet, we are starting to see signs of positive changes in the economic thinking of the entire stratum of workers who organize, plan and direct the production processes. We have also seen a positive effect from the organizational changes which we carried out in the management structure of the production base, from strengthening the Skoda VHL [economic production unit] production base and establishing an independent Vitkovice VHL up through the more recent action, building the Kladno Industry of Waste Metals VHL.

The results of fulfilling the plan for the first years of the Seventh 5-Year Plan, when the rate of development of our production, particularly in heavy engineering, was rejuvenated, give us justification for a number of other important actions in keeping with the conclusions of the 10th Plenum of the CPCZ Central Committee to step up the original tasks of the plan for this year and 1985. They are directed at the following:

- maintaining and further intensifying the production dynamics and utilization of the output of metallurgy and heavy engineering so as to fulfill and exceed the original goals of this 5-year plan in the ministry as a whole;

- establishing more progressive production and delivery tasks while achieving a further limitation of fuel and energy resources in order to increase overall efficiency;

- increasing emphasis on meeting the required volume and make-up of deliveries of rolled-steel materials, technological assemblies and individual tools and equipment. We want to support thoroughly deliveries for nuclear energy, surface coal mining, transportation and the agricultural-foodstuffs complex, as well as other branches, in keeping with the plan. It will be necessary to intensify the production of the modernization, reconstruction and automation production base for metallurgy and heavy engineering. We will manage the application of research and development results so as to have new products at a high technical and economic level make up about 9 percent of the overall goods production by the end of this 5-year plan.

Other actions are directed at improving the effectiveness of our production branches in the foreign markets.

From the actions taken so far, quantification of the intentions and results of workers' initiatives, it appears that this year we will reduce the consumption of electrical energy in the ministry by at least 80 GWh less than the plan on the basis of rationalization and suggestions from checks in society, of course without restricting material production and variety. By more economical operation of our own energy facilities we will produce an additional 30 GWh. Through better organization, timely deliveries and increased work sacrifices

by work collectives in repairing FMPE [Federal Ministry of Fuel and Energy] energy facilities we secure shorter outages of electric power plant sections; this increases the production of electrical energy by at least 50 GWh over the predictions of the fuel and energy ministry. In comparison with 1983, the consumption of heavy fuel oils has gone down absolutely and will be 2.1 percent less than the original calculations for 1984.

In the technical preproduction elements, we are organizing an acceleration of technical development and technical rationalization programs which will make it possible to exceed the planned savings in ferrous and nonferrous metals by at least 1 percent, to reduce labor intensity by 2 percent, to achieve 1.5 percent savings in direct expenditures overall projected to create profit, and to exceed the planned productivity of labor by 1.5 percent over the original level planned for 1984. In material production, we will increase uniformity and achieve the desired volume and inventory make-up; on the basis of a higher assessment of resources, we will produce roughly 2 days' extra output from the savings above plan. We will also accomplish this by increased savings of ferrous and nonferrous metals of 41,000 tons and a reduction in labor intensity of 4,170,000 manhours.

We place special significance on the rational utilization of supplies with the goal of speeding up their turnover by creating ready supplies at Ferona and Sigma, Central Sales. We want to reduce supplies of metallurgic materials, pumps and armatures held by consumers gradually by about Kcs 1.6 billion. By special measures, we want to limit supplies to no more than about Kcs 300 million. This year we will ensure an increase in production of almost Kcs 400 million over plan.

The program indicators and goals in the area of inventory changes in production and usage of the FMHTS [Federal Ministry of Metallurgy and Heavy Engineering] products are also mainly determined by the 10th Plenum of the CPCZ Central Committee. With limited raw material and energy inputs, we are directing efforts at increasing the proportion of high-grade steels and improving the selection of rolled-steel materials. The focus of these structural changes must be, and is already becoming, modernization and intensification of metallurgy consisting of accelerated construction of facilities for continuous steel casting (kontiliti) [as published] in conjunction with an increased proportion of steel production in converters and electric furnaces. Modern continuous steel casting is already bringing savings in both metal and energy this year. But its expansion is not taking place according to the needs and ideas. We also still have possibilities here.

More steel is being made in oxygen converters, which are replacing the obsolete Siemens-Martins furnaces which are energy intensive. There are opportunities for expanding powder metallurgy and precision casting. Total modernization is gradually being carried out at the Trinecke VGR Iron Works, the New Klement Gottwald Smelter, the East

Slovakia Iron Works, the Břila Cerkv Iron Works, in Pold and in Vítkovice. In 1985 production of steel in Siemens-Martin furnaces will drop to 20.1 percent (in 1980 it was 33.4 percent) and the share of steel production in oxygen converters will grow to almost 40 percent (in 1980 it was not quite 26 percent). The share of production in electric furnaces in 1985 will be 14.7 percent.

Taking older facilities out of production must go hand in hand with the introduction of more modern methods. Our intention is to take about 20 obsolete Siemens-Martin furnaces and 19 rolling mills out of operation by the end of the Eighth 5-Year Plan.

The pipe program, whose final part is being carried out in the Seventh 5-Year Plan, included construction of new capacity for a variety of petroleum pipes, construction and precision pipes of carbon steel and special precision pipes of noncorrosive steel.

Despite certain difficulties, it is essential that we widen and accelerate the transition to rolling materials within close tolerances as one of the effective trends which has already been implemented at the Trinec VRSR Iron Works. Its expansion to other enterprises within the Iron Smelting VÚJ is planned for the immediate future. We are also planning on increased production of economic profiles. For example, during general overhauls of blast furnaces, a computer is installed to control optimum operations, which reduces losses. We are paying close attention to the use of waste heat in the metallurgy field.

I have presented only some of the more important examples.

The goal of our metallurgy at the end of the 5-year plan and then particularly during the Eighth 5-Year Plan is the greatest possible intensification of the production processes and ensuring the delivery of the right assortment of metal materials with the desired properties. Heavy engineering likewise is undergoing basic changes in the production and supply structure, as planned for the Seventh 5-Year Plan. At the same time, of course, we respect conditions as they actually are and clarify the requirements both on our investors and of the most important foreign customers, mainly in the USSR.

Priority is being given to supporting the Czechoslovak nuclear power program, which in the Seventh 5-Year Plan most significantly affected the production and supply structure of our machine tool enterprises. Indeed, the production of equipment for nuclear power plants, which was developed mainly at the Skoda Plzeň and Vítkovice VÚJ's but also at Sigma, Chepos and other VÚJ's of the ministry, will almost double in 1985 in comparison with the first year of the Seventh 5-Year Plan.

We will ensure intensive growth rates for production of a number of other demanding production fields which determine the shape of heavy engineering and the industry as a whole. I have in mind, for example,

foodstuffs machinery where, as a result of progressive development of the foodstuffs program, we are substantially accelerating production over the original goals of the Seventh 5-Year Plan. Here grain production has almost doubled in the Seventh 5-Year Plan.

We are actively reacting to the accelerated transition of Czechoslovak railroad transportation to electric traction by increasing the production and delivery of electric locomotives. Through more progressive development of the Czechoslovak chemical industry, we are increasing the production of chemical equipment for new intensification technology and processes for production. By improving on wheeled vehicles, streetcars, locomotives, trolleybuses, and turning and shaping machinery we are looking to reduce the consumption of metals and electrical energy.

We are giving concentrated attention to the development of electronics production. We are accelerating the production of high-performance semiconductor elements and transistors at CKD Prague VIIJ. We are also developing the production of pumps and armatures, air compressor products and transportation equipment.

In summary, I can say that all of the years of the Seventh 5-Year Plan have been a period of significant changes in the structure of heavy engineering's production base. In conjunction with a general transition of the Czechoslovak economy, as well as the production structure of the socialist countries, to an intensive type of development there has been a gradual reevaluation of the needs of our inventors and foreign investors as well. Our producers had to adjust to this, and often at the expense of more rapid growth in our own effectiveness. I am emphasizing this because the same, if not greater, emphasis on adjusting our production programs to the changing needs of the customers will take place in the period after 1985. Our analyses of the probable development of investments in the Czechoslovak economy and abroad, as well as specific discussions in preparing directives for the Eighth 5-Year Plan, show that after 1985 we will be faced with a number of significant structural changes in industry. The course of the Czechoslovak and Soviet foodstuffs programs require further growth in the production and delivery of our foodstuffs equipment. In the field of machinery for energy purposes, there will be an increase in requirements for equipment to measure temperatures in nuclear power plants, and even at independent nuclear heating plants.

We must work out the program for reconstructing our boiler equipment. We currently need to be reacting to the growth in the production base for technology for producing energy from unconventional sources; I have in mind here biogas, solar energy, etc.

The changes in the structure of transportation engineering will be very demanding, as we have to react to the decline in requirements for freight cars as well as changing diesel electric traction over to electric. In chemical engineering, we will build up production of technology for low-volume, precision chemistry.



It is gratifying that as the needs of our mines are satisfied in the future there is a growing interest abroad in Czechoslovak modern equipment, mainly for strip mining.

A specific problem will be the progressive development of areas of assembly work. It is clear that the production of components and assembly sections is a subject of intense interest in the program of developing socialist economic integration. Division of labor, unification and standardization of these parts and products is the path to which for all socialist countries leads to intensification, mass production, limitation of the inventory of products, and thus to an overall increase in efficiency. This concept affects the structure of the production programs of all our producers, but especially for the Sigma Czechoslovak Air Technology Plants VHI and for CKD Prague.

By analyzing the innovative programs of organizations in the FMHTS together with the resolutions of the Eighth Plenum of the CPCZ Central Committee, we determined in what areas and to what degree the innovative processes and result of research and development meet the needs of the national economy. It also showed where there are still weaknesses which require further work and where we should focus the efforts of the research and development base.

A positive characteristic feature of the innovative programs of the engineering VHI's in the ministry is the fact that for the most part they achieve improved support of the fuel and energy, transportation, agricultural and foodstuffs, and construction complexes by the delivery of modern, improved and highly efficient machinery, equipment and capital investment units. Likewise, the orientation of innovation programs toward exports is showing significant progress, with an increase in the proportion of products at a high technical level and of high quality.

It is also an important fact that most of the innovation programs are directed at 46 to 57 key support product areas which substantially influence the structural transformation of heavy engineering material production. Their development rate up to 1990 calls for an average increase of about 5 percent each year. Those areas least demanding of material and energy and most progressive from the standpoint of viability in foreign markets are preferred. These include, for example, nuclear power plant equipment, steam and hydroelectric turbines, electric and motor-driven locomotives, trolleybuses and streetcars, equipment for the chemical and foodstuffs industry, machinery and equipment for processing rubber and tires, high-performance transistors and semiconductor elements, industrial armatures and pumps, air compressor equipment, diesel engines and generators, heavy turning and shaping machine tools, rolling mill equipment, cement plant equipment, robots and handling equipment, wheeled excavators and loading equipment. Here we are concentrating our main efforts on the research and development sector for managing the innovation activities of the ministerial research and development base, together with creative actions at all stages of the production process.



The innovation programs of the metallurgy and ore mining branches of our ministry are mostly directed at technological and material improvements and only in isolated cases at new products, which meets the requirements of the production process in the given branch. Most of the new items involve modernization of technological processes in extracting and processing raw materials and materials closely connected with the introduction of computing, measuring, regulating and control equipment and modernization of the machinery on the basis of microprocessors, automation and use of robots. A consequence of this trend toward innovation is a substantial reduction in labor intensity and an increase in the productivity of labor, as well as reductions in the energy and raw material demands, including improvements in the ecology of metallurgy and mining operations. Important effects include increasing the proportion of recycling and no-waste processes, utilization of low-grade and waste raw materials, and the development of new materials and semiprocessed goods with reliable properties.

But we cannot overlook the deficiencies which were discovered in the analyses and which were also critically mentioned during the 10th Plenum of the CPCZ Central Committee. These are primarily the excessively long time that the innovation cycle takes from establishing the goal up to utilization of the product or technology. We likewise have not reduced the significant material costs of the new products finally brought out in comparison with those on the worldwide level, even though their technical qualities often are among the best in the world.

One factor which cannot be forgotten in the development of both of our branches and the national economy as well is the intensification of international cooperation, especially with the CEMA countries. The results so far from bilateral and multilateral cooperative and specialized agreements and agreements on research and development cooperation are proof of this.

One example will speak for all of them: The Agreement on a Cooperative Program between the CSSR and the USSR in the area of developing nuclear energy in the CSSR up to 1990, signed by the heads of government in June 1980, is a document of comradely, sincere and generous but very useful and necessary mutual cooperation and assistance. It covers cooperation in the construction of nuclear power plants, in the production of equipment for nuclear power plants, research and development cooperation in this field and cooperation in the operation of nuclear power plants. It is the firm background for the development and stable production of many of our VHJ's (Skoda, Vitkovice, Sigma, Chepos and others). Without this cooperation, it is hard to imagine the development of our energy-oriented engineering. Without this cooperation we certainly could not have already built the nuclear power plants in Jaslovské Bohunice nor currently be constructing nuclear power plants at Dukovany, Mochovec and Temelin.

Developmental problems of metallurgy and heavy engineering have always been in the forefront of the interest of the party and governmental leadership. To a significant degree, the development of these branches determines the level to which intensive paths of development can be followed in the production and nonproduction areas of the economy, and it plays an irreplaceable role in creating sources of profit for the national economy. Currently both branches have clear programs for their operations up to the year 2000 and there is a clear long-range concept for utilization of their production directly for complete satisfaction of the needs of Czechoslovak industry and exports.

But accomplishing the goals laid out definitely requires creative work and initiative by all work collectives in the metallurgy and engineering economic production units. We must therefore organize widespread and far-reaching socialist competition in honor of the 40th anniversary of the culmination of the national liberation struggle of the Czechoslovak people and the liberation of our country by the Soviet Army while we are carrying out this executory plan, and make use of this anniversary to mobilize the workers.

6285

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CSR GOVERNMENT REPORTS ON NORTH BOHEMIA ECONOMIC DEVELOPMENT

Prague RUDE PRAVO in Czech 25 Oct 84 p 3

[Article on report by Frantisek Sramek, deputy premier of the CSR Government, at a meeting of the Czech National Council: "The Government Report on Development in the North Bohemia Kraj"]

[Text] The development of the North Bohemia Kraj was the subject of a meeting of the Czech National Council on Tuesday 24 October in Prague 14. The report of the CSR Government, based on in-depth field research and analyses by its committees, was presented by Frantisek Sramek, deputy premier of the government.

Top priority for the economic development of this kraj has become the assurance of the development in steps of the fuel and power base, the facilities of which located in North Bohemia constitute an important part of total Czechoslovak capacity both for the extraction of brown coal and for electricity generation. The annual extraction of coal in the North Bohemian Brown Coal Region has already reached the 70 million ton mark, with the target for the first 3 years of the current 5-year plan exceeded by 0.7 million tons.

This performance, noted F. Sramek, was achieved thanks to political-organizational measures in the actual extraction operations in the enterprises of the North Bohemian Brown Coal Region, as well as to improvement in the output and reliability of the mining machinery and improved fulfillment of the capital investment program for open pit mines. The latter has resulted over the past 3 years in the acquisition of new extraction capacity of 13.7 million tons per year. Improvements in fulfillment of the plan for overburden removal has increased the size of coal inventories that are ready to be mined.

Main Economic Directions

The deputy premier of the CSR Government then mentioned the exceptional results which have been achieved in the formation of the conditions for coal extraction, such as in the Mostecky Corridor, the relocation of the Chomutov-Prunerov-Usti nad Labem-Teplice-Trebusice-Chomutov rail line, the demolition of the old sections of Most, and others. These

programs created the conditions not only for current mining operations but also assured uninterrupted open pit mine work into the Eighth 5-Year Plan.

While extraction operations have been developing positively, we have not been successful in handling our dumping needs. Because of geology-related mining problems, the shift to dumping at on-site locations has been postponed. Originally this was scheduled to begin in the current 5-year plan. This is forcing a slowdown in the closing of external dumps. On the contrary, and counter to the regional plan, additional dumping sites have been requisitioned, many of which require that land be taken out of the stock of agricultural soil.

Completion of the construction of the Prunerov II electric power plant, with a capacity of 1,050 megawatts, closed out plans for the construction of steam electric power plants in this kraj. In the further development of the power industry, attention will shift to issues of environmental protection. In accordance with the regional plan, construction of planned ash dumps, with the exception of the settling basin at the Prunerov coal mine, where the unplanned requisition of land for dumping operations by the North Bohemian Brown Coal Mines has necessitated the selection of new locations, is proceeding.

Capital investment in the kraj chemical industry in the Seventh 5-Year Plan is being concentrated, for practical purposes, in the Litvinov Czechoslovak-Soviet Friendship Chemical Plants, where construction of a new refinery has been completed and the damaged plants for rich gas separation have been rebuilt. These two projects completed the operational startup of a new petrochemical production facility. Preparations have recently been completed for the construction of a facility for processing heavy heating oils, a component of which has become, based on a CSR Government decision, environmental installations. These include waste water treatment facilities, a smokestack, and desulfurization equipment, plans for the installation of which are running behind schedule. The government is keeping up the pressure, however, for the concurrent construction of these environmental protection installations along with the construction project itself.

Programs of the Ministry of Transportation are also related to the development of the main components of the economy of this kraj. In railway transportation, in addition to the relocation of track, attention is being focused on the electrification of operations and the modernization of safety and signaling equipment to improve the throughput of the most heavily traveled sections. This objective has been fulfilled and transportation requirements have been met.

The role of organizations of the Ministry of Forest and Water Management has acquired particular significance in North Bohemia. This is because in the struggle to protect our forests seeding cultivation and renewal programs represent the sole present source for the renewal of damaged and affected forest stands until desulfurization equipment has been widely installed. Top priority has been assigned to reforestation: in the

first 3 years of the current 5-year plan more than 16,000 hectares of damaged land were planted, which represents 54 percent of the goal for the 5-year plan. This means that 1983 was the first year in which the area of deforested land declined. A lack of seedlings prevented the results from being better. The Ministry of Forest and Water Management therefore expanded the nursery program.

The operations of kraj general engineering enterprises were focused primarily on meeting delivery targets for machinery, equipment and the completion of construction work, according to F. Sramek. In addition to the previously mentioned improvement in deliveries and maintenance services for large machines, which was facilitated by the establishment of a Metallurgical Industry Maintenance Center, the establishment of a service center for the Milevsko Air Technology Equipment Production Plants to handle repairs on ash removal equipment has proved to be a positive step. We should not, on the other hand, be satisfied with the performance in deliveries of supplies and component assemblies for comprehensive apartment construction, and especially of exchanger station and boiler installations. The construction of larger production facilities for communications cables that has been initiated at Kablo Decin is of nationwide importance.

The program for expanding production is being successfully carried out by the consumer goods sectors under the CSR Ministry of Industry, which continue to fulfill their targets despite a chronic labor shortage. The textile, glass, costume jewelry and ceramics sectors, where a large percentage of the work force is female, are all showing excellent performance results. Less successful, however, have been efforts to fulfill capital investment targets for these sectors.

F. Sramek also stated that tasks in the agrofood complex are focused both on the intensification of production activities and on a resolution of the negative impact of the fuel and power sector on plant production, while at the same time supplying the population of the kraj with quality foodstuffs.

During the period under consideration 2,050 hectares of previously uncultivated land, or 68 percent of the target for the 5-year plan, were returned to agricultural production. Irrigation systems were installed on 3,800 hectares, especially in the dry regions of the Poohří. To assure a supply of fresh vegetables for the market, an additional 62 hectares were put into vegetables and an additional 125 hectares into fruit.

Supplies available to the general public were improved by the opening of a meat combine in Chomutov and a part of a milk factory in Ceska Lipa.

#### Attention to the Environment

The regional plan provides for considerable attention to a program of concern for the public and for the environment. In order to halt the continually worsening condition of the environment, substantial resources



and facilities have been assigned to this goal. It is, however, an exceptionally complex and serious problem, in F. Sramek's words. Actually, the problems are such that they require various levels of technical sophistication to be dealt with. We already possess the technology to handle some of the necessary procedures, but the solution to other problems requires technology that we have just discovered and for which we are still working on the most effective practical application. The problem is primarily one of harmful gaseous emissions, especially of sulfur oxides. In this regard, F. Sramek noted that the program for the rebuilding of ash removers which was carried out according to plan in 1981-1983 has met with some delays and that the reconstructed ash removers are not performing to specifications. The main reason for this is that in many instances all that was done was to replace certain worn-out components.

Several important investment projects have been initiated to deal with the sulfur oxide emission problem. In 1983 these included the construction of prototype desulfurization equipment at the first 200 megawatt unit at the Tusimice II Power Plant as well as the construction of a 25 megawatt fluidized boiler at the Trmice Heating Plant. Work was also initiated on the desulfurization of expansion gases at the Uzin Pressurized Gas Works, which should substantially reduce the negative impact of its operations on this kraj city. The construction of desulfurization equipment for generator gases at the Chomutov Pipe and Iron Rolling Mill has been delayed, postponing thereby the anticipated positive impact on that city's environment. Supplier deliveries for this installation have not been well coordinated, which has resulted in an ongoing series of problems. The federal and national governments are expending considerable efforts to reduce the emissions of sulfur oxides.

Some assistance in this area should be provided by the startup of operations at the Komorany Homogenizational Crushing Plant, which will process the high-sulfur coal from the Czechoslovak Army Coal Mines so that the delivered fuel will have no more than a 4 percent sulfur content. One of the most effective measures for reducing environmental damage is the expansion of centralized heating supplies. Despite significant difficulties, we are having success in implementing this highly investment- and materials-intensive program. Note should be taken of those construction organizations which have been attempting to shorten the completion schedule for the construction of the thermal connectors for the large Krasne Brezno apartment complex in Usti nad Labem, which has made it possible to reduce demands for the installation of mobile boilers and therefore to save heating oil. Progress on the construction of heating sources in Ceska Lipa and Novy Bor has also improved.

The program for environmental improvement attaches high priority to the recultivation of land that has been devastated either by coal minioperations or the related dumping operations. We have been fairly successful in meeting targets for the completion of this work, having recultivated 1,435 hectares in the first 3 years of the current 5-year plan, which is 90 percent of the overall target.

One of the important measures for improving the appearance of this region is the planting of greenery, which has involved enterprises, organizations, citizen committees, schools, etc., within the context of fulfilling so-called greenery programs. During the period in question 6.9 million new trees and 3.1 million new shrubs have been planted, and 1,146 hectares of greenbelt space have been created. The Okres National Committee and City National Committee of the city of Most are a fine example of the proper approach to the improvement of the urban environment, the appearance of villages, and the effective conduct of recultivation.

#### Program of Concern for the General Public

In continuing his report, F. Sramek spoke about the objectives of the regional plan related to concern for the general public. He emphasized that these objectives have been fulfilled on an annual basis which, in conjunction with an expanded program of apartment construction, has already resulted in a stabilization of the population. Success has been achieved in the gradual implementation of a program whereby children in the basin ~~okreses~~ are sent at least twice annually to nature schools. Their number increases continually, with 145,000 taking part in the program this year. About Kcs 190 million are expended on this program each year. F. Sramek praised the contribution of the Revolutionary Trade Union Movement [ROH] to the utilization of enterprise recreational facilities and summer pioneer camps for these purposes. Programs are also proceeding for sending children to health improvement centers, treatment centers, spas and to the seashore. Measures related to the health and well-being of the adult population are also being implemented.

Frantisek Sramek stated that the CSR Government has approved, at the request of the North Bohemia Kraj National Committee and Ministry of Health, an incentive package to increase the stability of the physician and pharmacist population in the kraj. Such a package should have a positive influence on the staffing of health care facilities.

The fundamental problems in the development of the school system are gradually being resolved through close cooperation between the Ministry of Education and the Kraj National Committee.

During 1982 a series of incentives was also introduced to stabilize the population. These include the payment of an annual allegiance stabilization contribution, which this year was offered to 140,000 workers and which amounts to about Kcs 280 million annually.

Housing construction plays an essential role in stabilizing the work force in the kraj. The regional plan set the goal of completing 55,000 apartments during the current 5-year plan, which would make a significant impact on the housing stock. Planned contractor construction of 43,000 apartments, however, has been accompanied throughout by a series of investor, design and contractor problems. In 3 years only 21,134 apartments

have been completed, which is not even half of the target for the Seventh 5-Year Plan. This situation is to some extent compensated for by nontraditional forms of apartment construction, where a realistic estimate is for 2,500 completed units instead of the 1,505 that were planned. The greatest shortfall in the housing construction program will be in detached family houses.

Great emphasis has been placed on the construction of public facilities, where the situation has improved considerably with the construction over 3 years of 169 facilities.

Special-purpose construction in the North Bohemia Kraj has been directed at health care facilities and the basic requirements of the public infrastructure. With government approval, the health care-social service field has been strengthened. This includes the construction of visiting nurse facilities, senior citizen homes, and housing for health care personnel. The implementation of this program will result in an additional 670 apartments in homes with visiting nurse services, 1,000 places in social service institutions (including roughly 160 places in senior citizen homes), and 450 additional beds in dormitories for health care personnel.

The construction and rebuilding of selected roads and major road repairs are all proceeding at a satisfactory pace. All of the preconditions exist for the fulfillment of assigned tasks. Work must now be stepped up on the extension of route 1/13 in Chomutov, where a forced detour is complicating the traffic situation.

The service sphere of various sectors has been strengthened with the construction of a department store in Decin, and Jednota shopping centers in Rumburk and in Podborany. Under Project Z a total of 31 sales outlets have been completed, with a total sales area of 3,000 square meters.

The reconstruction of the Fucik Spa Home has increased the bed capacity at the Teplice Spa. The rebuilding of the Libverda Spa is also proceeding under this program. It will be necessary, however, to complete the program during the Eighth 5-Year Plan with the completion of the treatment facilities at these spas.

New telecommunications facilities have been put into operation at Usti nad Labem and in Ceska Lipa. A similar facility in Teplice is far behind schedule.

#### Fulfilling More Than Volume Targets

In F. Sramek's words, the foregoing makes clear that the established development program for North Bohemia Kraj places great demands on capital investment. Its implementation is unthinkable without a corresponding increase in construction capacity in the requisite areas. The existing resources of the kraj are not adequate to assure this. The CSR Ministry of Construction, as the largest construction contractor in the kraj,

has had to organize substantially larger transfers of equipment and personnel than in the past in order to assure the priorities of this capital construction program. Approximately 25 organizations from this sector are currently at work on North Bohemian territory, with Plzen Surface Construction and Karlovy Vary Surface Construction the enterprises most actively involved. A basic measure in this regard was the decision to establish a new sectoral enterprise, Usti nad Labem Surface Construction, which with an annual capacity of more than Kcs 3 billion of construction work has become a major stabilizing factor in the construction activities of the kraj. Even organizations under the SSR Ministry of Construction are handling important projects in North Bohemia Kraj.

In the first 3 years of the current 5-year plan these construction contractors have completed Kcs 22.6 billion out of a 5-year target of Kcs 39.5 billion of construction work, fulfilling the 3-year target by 103 percent.

Results have been less positive in the material fulfillment of the capital investment plan. One aspect of this is the overall fulfillment of priority tasks in the construction plan, which is improving from one year to the next and for the most part is exceeding its targets. On the other hand, however, capital construction targets are not being met for national committee work, either for housing construction or for special purpose facilities.

This has above all resulted from the structure of available contracting organizations, which still are not equipped to meet the demands of the changing requirements of the capital construction program, with its increased emphasis on the construction of special purpose facilities for national committees, public services and the public works infrastructure.

Despite some improvements in this situation, especially last year, the active resolution of this problem will remain a major task for the rest of the Seventh and the entire Eighth 5-Year Plan. The primary objective will be to increase the number of organizations that are based in the kraj, with particular attention devoted to increasing the number of employees and apprentices.

#### Importance of the Regional Plan

Frantisek Sramek noted that the stabilizational character of the entire regional plan is already being reflected in a turnaround in the kraj-wide migration of the population. Between 1981 and 1983 the number of employees increased by 8,700. Interkraj recruitment is also proving successful. Of the total number of eligible youth, 62 percent are preparing for a blue-collar occupation. The supporting conditions for the quality training of apprentices are being developed with the construction of new training centers, such as the mining training center in Most-Velebudice (for 1,000 apprentices). Training centers for water management facilities in Roudnice nad Labem and for surface construction in Usti nad Labem remain uncompleted.



Construction is slated to begin on the other training centers planned by the sectors in this region in 1984 and 1985.

The CSR Government can state, based on its knowledge of the situation, that positive changes have taken place in the North Bohemia Kraj which have resulted in an improved economic situation, smoother growth rates for production, an improved standard of living for the general public and better appearance of apartment complexes. Instances of failure to meet objectives, which have not detracted from the overall successful fulfillment of the developmental concept, will be the object of ongoing government attention until they are fulfilled.

Nevertheless, it is necessary to mobilize the remaining underutilized capacities which exist both in the production sphere and, primarily, in managerial and organizational work, because this can improve the fulfillment of the programs cited above in the remaining 2 years of the 5-year plan.

In the development of the fuel and power sector it will be necessary to continue to assure the development of conditions for coal extraction, determine the necessary level of investment to assure this and to organize dumping operations in a more resolute and responsible fashion so as to facilitate the expansion of the recultivation program.

The power industry will fulfill not only demanding tasks in the production of electricity but will also play a major role in the struggle for environmental improvement. We have proposed that resources be concentrated on the completion of the rebuilding process of ash removing equipment at electric power plants and expanding the process of filter replacement at other heating sources.

Following the completion of a prototype desulfurization unit at the Tusimice plant and the evaluation of its efficiency, a program will be formulated for desulfurization at other electricity generation units. On the basis of the results of research and development of fluidized bed boilers, their appropriateness for heating plant installations will be evaluated.

The proposed regional plan should also include regulational measures applicable to temperature inversions and to situations when the highest permissible sulfur oxide concentrations have been reached.

The CSR Government will demand that in the Eighth 5-Year Plan the kraj maintain the same pace of construction of centralized heating systems. Likewise, in areas with excess heating capacity new consumers must be allowed to hook up to the system, and local sources must be phased out.

The results of the fulfillment of the regional plan have demonstrated its appropriateness to the management of the kraj economy. The exceptional complexity and specificity of the socioeconomic development of North Bohemia requires that this development continue to be managed by this or similar documents.



Therefore, a draft of a regional plan for the development of the North Bohemia Kraj has been prepared for the Eighth 5-Year Plan, which is fully integrated with the existing document for the Seventh 5-Year Plan.

### Sectoral Responsibility

Within the context of sectoral capital investment activity the government will require and enforce action on all attainable environmental protection measures. Pressure will be exerted to force sectors to respect the priority being accorded to the resolution of the environmental problems of the North Bohemia Kraj.

Greatest importance among these measures has been assigned to the intensification of the program for bringing back the forests of the Krusne and Jizerske Mountains.

The draft of the regional plan for the Eighth 5-Year Plan outlines the further growth and adaptation of the structure of construction projects. This is an extensive program which will require the ongoing participation of facilities from the Slovak Socialist Republic, in the amount of about Kcs 1 billion.

The favorable development of population movements and the high level of fulfillment of recruitment targets has reopened the issue of the occupational structure. An improvement in the occupational structure must depend on growth in the research and development and managerial base as well as the relocation of sectors which correspond to the production and territorial profile of the kraj. In conjunction with this attention must be paid to the development of the school system.

The requisite improvement in the environment and living conditions necessitates a further improvement in the quality of the technical-organizational work of senior managers of national committees responsible for supplies, sales, services, the functioning of the transportation system, the cleanliness of cities, landscaping improvements and the maintenance of greenbelt areas. This is also one of the preconditions for the fulfillment of the proposed program.

On behalf of the government, Comrade Sramek thanked the delegates from the Czech National Council for their great interest in the economic development of an important area, the North Bohemia Kraj, and for their ongoing and active attention to this issue. Delegate comments will be utilized in managerial work in the preparation of a draft of a regional plan for the development of the North Bohemia Kraj in the Eighth 5-Year Plan. The government is determined to enforce and implement during plan fulfillment activities which contribute to the further economic development of the kraj, the standard of living of the population, and which intensively continue efforts to improve the environment which were initiated in the current 5-year plan.

## MACHINE EXPORT INCREASE NOTED

Prague SVET HOSPODARSTVI in Czech 30 Aug 84 pp 1, 3

[Article by -sk-: "Increased Exports of Machinery"]

[Text] Our machine engineering industry is participating with increasing intensity in the international socialist division of labor.

Final accounting for Czechoslovak exports and imports of multifaceted specialized engineering products in relation to the CEMA countries for 1983 showed assets in the amount of 828.1 million rubles in current prices. As compared with 1982, there was an increase of more than 167 million rubles, which represents a 26 percent increase in current prices.

The achieved values of multifaceted specialized engineering products exported and imported in 1983 to individual CEMA member countries as well as the final balance for 1983 and 1982 and their differences are presented in the table below (in thousands of rubles).

Even a glance at the development of relations with individual countries shows that during the period under study the CSSR's positive standing vis-a-vis the Republic of Cuba, the Polish People's Republic and the USSR has not changed, and neither has its passive position vis-a-vis the Bulgarian People's Republic and the Hungarian People's Republic. On the other hand, in the case of the GDR and the Romanian Socialist Republic reciprocal trade of multifaceted specialized engineering production turned from a passive to an active position.

From a detailed territorial analysis we may see that a major part of the CSSR's active balance is determined by our relation to the USSR, where regular annual increases were noted; as compared with 1982, in 1983 this increment represented a value of almost 142 million rubles in current prices, i.e., an increase of 20 percent. Deliveries of machinery and equipment from the following multilateral agreements held the largest share in the achievement of an active balance:

--trucks with a capacity of 12 tons or more, with a balance of nearly 150 million rubles; the CSSR exports Tatra trucks and imports Belaz trucks from the USSR;

--ships and riverboats with a balance of more than 56 million rubles. The CSSR delivers particularly ferry boats, cargo ships for river and lake navigation, hydraulic dredges, and imports ferry boats from the USSR;

--machinery and equipment for the knitwear industry, with a balance of almost 36 million rubles earned by Czechoslovak exports of looms and knitting machines and equipment;

--machinery and equipment for the textile industry, with a balance of almost 200 million rubles; the Czechoslovak list of exports includes mainly slubbing equipment, spinning machines, weaving looms, equipment for dyeing and finishing plants, equipment for preparation of yarn and cutting processes; Czechoslovak imports include different models of the same items.

Among additional items which are highly active assets to the export-import balance of multifaceted specialized engineering products are: equipment for the printing industry (platen sheet machines, spaced type casting machines, offset cover machines and cardboard machines), machinery and equipment for the textile industry, machinery and equipment for the shoe and men's wear industries, complete technological lines and equipment for foundries, various types of chemical equipment (reprocessing of crude oil, production of ammonia and methanol, sulphuric acid, phosphoric acid, nitric acid, etc).

The trends initiated in relation to the GDR continued in 1983. If in comparison with the preceding period the CSSR's passive balance for mutual deliveries of multifaceted specialized engineering products and equipment was considerably reduced in 1982, then in 1983 that balance was already active and amounted to 7.2 percent of the share in the volume of exports and to 7.7 percent of the share in the volume of imports. Among the key items which shared in the formation of assets were trucks, agricultural machinery and tractors, the URS machines and equipment, hydraulic equipment, freight cars, textile machinery and equipment, machine tools, etc.

In relation to the Romanian Socialist Republic, a change took place in the trend initiated by the development in 1982 with a passive balance. In 1983 that passive balance turned into the CSSR's active standing, and thus could be compared with the achievements of the preceding period, especially 1981. The relation to the Polish People's Republic in exports and imports of multifaceted specialized machinery and equipment is characterized by Czechoslovak continuous active balance. In 1983 it increased almost as much as in 1981; it amounted to 40.7 percent of the share in Czechoslovak exports and to 68.7 percent in Czechoslovak imports.

	(1) Ks. vývoz 1983	Čs. dovoz (2) 1983	Výsledné saldo (3)		Rozdíl (4)
			1983	1982	1+ -1
{ 5) Celková GMP	1 575 812	744 512	+ 831 300	+ 661 817	+ 169 483
{ 6) z toho					
{ 7) BR	62 470	121 332	- 58 862	- 37 745	- 21 117
{ 8) Cuba	15 280	-	+ 15 280	+ 10 581	+ 4 699
{ 9) HLR	64 115	106 401	- 42 286	- 29 375	- 12 911
{ 10) GDR	20 104	202 724	+ 20 104	- 3 000	+ 23 104
{ 11) PLR	110 047	0 599	+ 45 048	+ 31 081	+ 13 967
{ 12) RSR	49 007	44 073	+ 4 934	- 12 419	+ 17 353
{ 13) SSR	937 813	141 783	+ 843 030	+ 701 300	+ 141 730

- Key: 1. Czechoslovak export  
2. Czechoslovak import  
3. Final balance  
4. Difference  
5. CEMA--total  
6. of which:  
7. Bulgarian People's Republic  
8. Cuba  
9. Hungarian People's Republic  
10. GDR  
11. Polish People's Republic  
12. Romanian People's Republic  
13. USSR

In relation to the Hungarian People's Republic the successful reduction of the size of Czechoslovak liabilities achieved in 1982 could not be matched. On the contrary, the passive balance of the GMP in multilateral specialization and cooperation in machinery and equipment production reached an unprecedented peak, which amounted to more than 42 million rubles. The largest items in Czechoslovak imports which substantially affect the passive balance predominate: agricultural machinery and tractors, machinery for the garment industry, shoemaking machinery, automobile accessories, nodes and parts, equipment for automobile repair and service, pneumatic equipment, and autobuses.

In relation to the Bulgarian People's Republic the trend of the CSSR's increasing liabilities continued in 1983 and reached an unprecedented maximum amounting to almost 59 million rubles. The following items figure in particular in this: hydraulic equipment, accessories and spare parts for trucks, battery trucks and hoists.

From the preceding analyses of Czechoslovak exports and imports in the framework of individual multilateral agreements (SVET HOSPODARSTVI Nos 81 and 102), it follows that in principle total assets stem from several major agreements of a distinctly export type. Those contracts include machinery and equipment for the textile industry, trucks, metallurgical equipment for ferrous and nonferrous metallurgy, and others.

In 1983 within the framework of multilateral specialization and cooperation in the production of machinery and equipment with the CEMA member countries, Czechoslovakia's exports were more than double its imports. This result was achieved by a dynamic program, since Czechoslovak exports increased by 344 million rubles above 1982 and Czechoslovak imports in current prices were up almost 176 million rubles as compared with 1982. We presume that the trend thus initiated will continue in future years, although some partial changes must be anticipated in relation to certain countries, especially as regards higher Czechoslovak imports. These machines and equipment should replace similar imports from the capitalist states.

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## INCREASE IN AGRICULTURAL MACHINERY DELIVERIES VIEWED

Prague SVET HOSPODARSTVI in Czech 30 Aug 84 p 3

[Article by -lk-: "Increase in Deliveries of Agricultural Technology"]

[Text] Organizations of the Agrozet VHJ [economic production unit] commercial network--the syndicated trade organizations Agrozet in Brno, Agrozet in Zvolen, and Agrozet in Prelouc--delivered to our agriculture in the first 6 months of this year machines and equipment in the value of Kcs 2.132 billion, which is 62.7 percent of their annual task. In comparison with the same period of 1983 this year's deliveries of machinery investment in Czechoslovak agriculture for the period of the first 6 months were up Kcs 200.5 million.

In the first 6 months Czechoslovak agriculture obtained from the commercial network of the Agrozet syndicate, among other things, 77 grain sowers, 1,379 plows, 309 disc cultivators, 404 combines, 1,002 fodder tedders and rakes, 528 model E 512, E 514 and E 516 combine harvesters from the GDR, 330 Bizon Super combine harvesters from the Polish People's Republic, 138 high-pressure compressors, 350 self-propelled fodder harvesters, 250 4-row potato planters, 130 potato harvesters from the GDR, 427 manure spreaders, 428 model RMA 8 automatic fertilizer spreaders, 57 model T 174 crane loaders, 330 model ND 4-022 universal loaders, 745 tractor trailers and vans, and 50 milking machines.

In the first 6 months 5,200 tractors for Czechoslovak agriculture were delivered; this is 65.8 percent of the task for the year, which stipulates 7,899 tractors. The Agrozet Zetor municipal enterprise delivered 4,293 lighter Zetor models of unified series I, which is 82 percent of the task of 4,722 for the year. In addition, Czechoslovak agriculture obtained 535 heavier Zetor tractors of unified series II from the ZTS [Heavy Machinery Plants] in Martin, 51 small TZ 4K 14 tractors, 162 T 180 Skoda tow tractors, 115 caterpillar tractors, 24 K 701 tractors, etc.

In most of these lines the deliveries of essential machinery and tractors under discussion exceeded amounts planned for the first 6 months. Even more striking is the increase of deliveries when compared with the same period of last year. According to their needs and demands, before the end of June 1984 our agricultural enterprises thus obtained a total of 353 units of sowers, 748 plows, 309 combines, 37 fodder tedders and rakes, 266 combine harvesters, 250 4-row potato planters, 80 potato harvesters, 16 RUR 5 fertilizer spreaders, 29 RMA 8 automatic fertilizer spreaders, 38 ND 4 022 loaders, and 25 milking units more than in the first 6 months of 1983.

After a steep rise in deliveries of machinery investment from the Agrozet syndicate, which last year exceeded Kcs 600 million its stipulation for 1983, our agricultural enterprises thus obtained additional large quantities of necessary means of mechanization during the first 6 months of 1984. Since the beginning of the Seventh 5-Year Plan to the end of the first 6 months, these included 4,295 grain sowers (63.6 percent of the task for the 5-year plan), 6,788 plows (91.2 percent), 1,866 combines (124 percent), 5,134 fodder tedders and rakes (125 percent), 4,634 combine harvesters (77 percent), 789 high-pressure compressors (131 percent), 2,852 self-propelled fodder harvesters (72 percent), 979 potato planters (81.5 percent), 3,074 RUR 5 fertilizer spreaders (120.3 percent), 1,547 model ND 4-022 allpurpose loaders (96.4 percent), 2,558 RMA 8 automatic spreaders (68 percent), 6,992 tractor trailers and vans (84.9 percent), and 26,787 tractors, which is 89.7 percent of the total task for the Seventh 5-Year Plan; that included 18,223 Zetor tractors of lighter unified series I and 3,564 Zetor tractors of series UR II.

From a comparison with the tasks in deliveries of agricultural technology assigned to the Agrozet syndicate for the Seventh 5-Year Plan by decision of the Presidium of the CSSR No 151 of 1982 on the development of branches producing food for the people, it is evident that in certain lines of required machinery the tasks for the entire Seventh 5-Year Plan have already been fulfilled and overfulfilled. Agrozet will also meet its further tasks in deliveries of essential machinery ahead of schedule and even before the end of the Seventh 5-Year Plan. The stipulated volume of deliveries of technology for Czechoslovak agriculture amount to a total of Kcs 15,071 million; they also will be fulfilled and overfulfilled.

In deliveries of spare parts for our agriculture and other customers in the CSSR the plan for 6 months was 103.3 percent fulfilled; thus, the users of agricultural technology obtained additional parts in the value of Kcs 66 million. Deliveries of spare parts were Kcs 88.4 million higher in the first 6 months of this year than in the same period of last year.

## MECHANICAL EQUIPMENT CONTRIBUTES TO FOOD SUPPLY

Prague MECHANIZACE ZEMEDELSTVI in Czech No 9, 1984 p 383-385

[Article by Engineer Miroslav Svoboda, director of long-range development, Federal Ministry of General Machine Building]

[Text] One of the most important tasks of the national economy--the production of food to feed the people--is the job not only of agriculture, but also of industries which supply it. Suitable machinery, fertilizers, agricultural chemicals, and various services extended to highly industrialized agricultural production have an important effect on its overall results.

### Tradition and the Present

The production of agricultural machinery in Czechoslovakia has a century-long tradition. The revolutionary social and economic changes that occurred in liberated Czechoslovakia provided a sharp impulse toward an extraordinary development of agricultural machinery.

The change from scattered, small-scale production to socialist large-scale agricultural production demanded more and more efficient agricultural equipment. The industrialization of agricultural production, from the beginning of the 1950's in Czechoslovakia, created a need for new types of agricultural-machine enterprises, the production base of industry was expanded and modernized, and collaboration with partners in the other socialist countries was intensified. In a short time the machine building industry in Czechoslovakia created a research, development, and production foundation in the area of agricultural technology which was intended for the mechanization of labor and the application of new technological procedures in socialist agriculture.

The decisive production enterprises, research institutes, and commercial organizations in the field were consolidated in 1965 in the Zbrojovka VÚJ [economic production unit], thus laying the foundations for further development of agricultural machinery and its international collaboration with the CEMA member states.

First-generation large-scale agricultural production machinery, which in the 1960's substantially raised the level of mechanization of agricultural production in Czechoslovakia, was gradually replaced in the 1970's by more and more efficient machinery. This technological progress was most strikingly applied in the delivery of numerous, highly efficient self-propelled machines and a new generation of tractors. The systematically modernized, first standardized series of light tractors, the UR (Standardized Series) 1 Zetor, was joined in 1969 by the standardized series of heavy tractors, the UR 11 Zetor Crystal.

In addition to the production and delivery of individual machines, manufacture and delivery of technological lines for comprehensive mechanization of agricultural work were undertaken. Along with this the level of mechanization of harvest work rose. After the full mechanization of the grain harvest was mastered, work associated with the cultivation and harvesting of sugar beets was also comprehensively mechanized, and the level of mechanization of the harvest of hops, potatoes, and other crops was raised considerably. The process of international division of labor and specialization of production programs among the CEMA member states made a positive contribution to the achievement of these results.

The broad scope of delivery of machinery to agriculture and the development of its material and technical foundations were most clearly visible in the growth of labor productivity. Since the beginning of the socialization of Czechoslovak agriculture in 1949, technology together with industrial organization has replaced 1.5 million workers, while the basic resources have more than doubled.

#### The Goals of Agricultural Machine Building in the Seventh 5-Year Plan

The basic goals in the development of the material and technical foundations of Czechoslovak agriculture in the Seventh 5-Year Plan, based on conclusions of the 16th Congress of the CPCZ, were worked out in more detail in Czechoslovak Government Resolution No 218 of September 1980 "Providing for the Material and Technical Requirements of Czechoslovak Agriculture During 1981-1985." Unlike the previous two 5-year plans, this document did not envision a further substantial increase in the overall volume of deliveries, but only in certain selected types of machinery. This qualitatively new demand followed, among other things, from the changed economic conditions of agricultural production in Czechoslovakia and their new goals and needs. In addition to increasing deliveries of machinery for selected sectors of agricultural production--production of bulk fodders including hillside forage, vegetables and fruit, working the soil and sowing, automotive transport, irrigation, reclamation, etc.--the most important factor was the demand for energy-efficient and economical machinery.

The Fourth Plenum of the CPCZ Central Committee in October 1981 confirmed this trend in technical policy for Czechoslovak agriculture and, in the spirit of the economic program of the 16th Congress of the CPCZ, provided a stimulus to strengthening the technical production foundations of agricultural machine building.

According to Government Resolution No 184 of 1981, the Zbrojovka VHM, which united the decisive production enterprises, delivery organizations, and research installations in agricultural and tractor machine building, received 7 more organizational units with about 3,000 workers. One factory with almost 400 people was transferred from the Ministry of Mining and Heavy Machine Building, and 5 smaller STS [state tractor stations] and repair shops for agricultural machinery were transferred from the Ministry of Agriculture and Food. The greatest contribution came from the transfer of the national enterprise Roudnice Machine Building Plants and Foundries from the Ministry of General Machine Building, with a total of 2,200 workers. The former Zbrojovka VHM together with the new enterprises resulted, as of 1 January 1982, in a new production economic unit for agricultural machine building named Agrozet Brno, with 34,000 workers.

Despite the fact that the units transferred were already making largely agricultural machinery, the foundations were laid for better organization of the production base, increasing labor productivity, and shifting "non-agricultural programs" elsewhere. The production of Liaz truck axles will be gradually transferred from the ROSS Roudnice national enterprise, container production will also be moved, and after 1985 the production of frames for Praga V3S trucks will be removed. The Agrostroj Rozmital factory has ceased production of mine locomotives and has begun cooperation with Sigma VHM. Similar steps are being taken to enlarge the area for production of agricultural machinery in other associated factories as well.

Another contribution from these measures will be increased production of agricultural machinery in the Seventh 5-Year Plan equal to 1.5 billion korunas. This will be realized principally by production the the most-wanted machinery.

In addition to the Agrozet VHM, output of machinery for agricultural production is being increased also at other VHM's under the Federal Ministry of General Machine Building [FMVS]. The Czechoslovak Automobile Works VHM is increasing deliveries of transportation and materials-handling machinery, specialized trucks, trailers, and high-lift trucks. The Martin Heavy Engineering Plants [ZTS] VHM, in addition to producing heavy tractors, construction machinery, and excavators for agricultural use, is planning to produce loaders and machinery for harvesting fodder on slopes.

Cooperation in the production of agricultural machinery has been intensified between the enterprises of the Agrozet VHM and the machine building operations under the ministries of agriculture and food, where more than 3,000 people work. Concrete forms of cooperation are contained in the contracts concluded, which, in addition to cooperation in final products, also specify the principles of cooperation in production, renovation, and distribution of spare parts. Consumption of these items in Czechoslovakia, however, is still disproportionately high and continues to exceed deliveries of spare parts to foreign customers.



The machine builders and farmers still face very demanding tasks in perfecting the system of maintenance, repair, and care for agricultural machinery and the distribution of spare parts.

Strengthening the foundations of production in the Ministry of General Machine Building and the adoption of other organizational technical measures in production and imports create the necessary basis for fulfillment of all the planned deliveries for Czechoslovak agriculture during the Seventh 5-Year Plan and even provide for exceeding the balances established by the State Planning Commission, insofar as the economic conditions of Czechoslovak agricultural enterprises permit.

#### Machines for the Eighth 5-Year Plan

In the discussion of the concept of development of the production foundations of the newly created Agrozet VNH among members of the federal government, it was decided to develop and gradually introduce measures to raise the technical and economic standards of the machinery delivered to Czechoslovak agriculture. For this purpose an overall analysis was made of the standards of domestically produced and imported machinery, and a comparison made with the most advanced foreign examples. From the results of the analysis a new "System of Machinery for the Comprehensive Mechanization of Czechoslovak Agriculture in the Eighth 5-Year Plan" was prepared. This work, which was carried out under the direction of the Federal Ministry of Agriculture and Food, employed more than 340 specialists from production, research, universities, and agricultural practice.

The proposed new "System of Machinery" for individual branches of agricultural production is based mainly on these criteria:

- reducing consumption of energy and materials by agricultural production;
- reducing overall losses;
- minimizing the investment cost to increase labor productivity;
- installation of unified lines and systems of machines;
- reducing the unit pressure on the soil;
- developing, where possible, multipurpose machinery and equipment.

At present a plan is being prepared to assure deliveries of machinery, both domestically produced and imported. Of the total of 780 items, the FMVS will supply 224 items of its own production, while it is proposed that 187 machines be imported from the CEMA member states on the basis of specialized and cooperative agreements already concluded. The agricultural and food ministries of the CSR and the SSR will produce 249 items in their own machine building shops, and the other ministries (metallurgy and heavy engineering, fuels and power, production cooperatives, local industry) will supply the remaining 120 machines and accessories.

In order to assure deliveries of machines in the Eighth 5-Year Plan according to the newly announced "System," the FMVS has prepared a program for reconstruction, modernization, and further development of production technology for agricultural machine building; for the 1984-1990 period investments of over 3 billion korunas are planned.

The goals of the program are:

- to introduce new tractor series: the UR III and UR IV;
- to increase annual production of small tractors from 2,400 to 5,000 and to expand the variety of tools available with them;
- to increase annual production of small agricultural machines from the present 17,000 to 25,000;
- to expand the range and increase the production of machines for soil treatment;
- to expand the production base for mechanization in mountainous areas;
- to increase production of potato planters and lines for treating potatoes after harvesting by about 30 percent;
- to introduce new types of agricultural loaders and materials-handling equipment;
- to expand the range and increase the annual production of Tatra-AGRO automotive and agricultural body parts by 1,000 units, to a total of 2,700;
- to introduce production of new types of attachments, multipurpose accessories, and containers for agricultural transport with useful loads of 12-22 tons.

The measures which have been prepared will increase production of tractors by about 26 percent and agricultural machinery by about 30 percent. This will lay the foundations for fully providing the required technology from the Ministry of General Machine Building in the Eighth 5-Year Plan.

The problem of assuring deliveries of progressive agricultural machinery occupied the 10th Plenum of the CPCZ Central Committee. Comrade Secretary Haman's report stated that in recent years the planned volume of deliveries had been exceeded and the needs of agricultural machinery had been better met. In general, however, agricultural machine building is not reacting properly to the qualitative changes which result from intensification of agricultural production.

In order to improve the situation in this area still further the Ministry of General Machine Building has worked out a program for raising the technical standards of agricultural machinery supplied, including measures concerning production capacities. It is expected that this program will be carried out at the end of the Seventh 5-Year Plan and during the Eighth 5-Year Plan.

Even during 1984 Zetor Brno S. will begin modernizing the UR I tractor and the ZTS Martin B plant will be working on modernizing the UR II tractor. This will result in reduced fuel consumption, increased output from the hydraulic equipment, greater universality, and better ergonomics and an improved driver environment. Next year in Brno the Z-5011 tractor will be introduced, something very much to be desired in agriculture. New generations of tractors, the UR III and UR IV, are being prepared for the next 5-year plan; they will meet the highest standards in all respects.

In addition to these series of tractors, Agrozet in Prostějov, Jicin, and Rožnava are planning further development of the production of small tractors and small agricultural machinery.

Considerable changes are occurring in the structure of agricultural machinery produced and supplied, in view of the constant increase in its complexity and the technical demands placed on it.

Because of changes and developments in agricultural technology a number of new machines are being demanded. But even here, given rational cooperation and specialization among the CEMA member states, the solution is within the capabilities of the Czechoslovak machine building industry.

Measures are being taken to see that production of all types of plows increase by 3,000, and that deliveries of 1,700-1,800 of the necessary types of planters be assured for this year. Beginning in 1986 production of planters, which have hitherto been imported, for sugar beets, corn, legumes, and vegetables will be undertaken.

Intensive work is going on to insure machinery for the sugar-beet harvest. Experiments are being carried out this year on a series of licensed harvesters, and by the middle of 1985 production capacity will be ready for serial production of 250 to 300 units per year. During the next 2 or 3 years the imported harvesters, which are not at all satisfactory, will be rebuilt.

The harvesting hillside fodder will be handled by the Zetor-Horál system from Agrozet Brno and a mountain harvester from ZTS Martin. Their production is being checked out this year, and beginning next year they will be in serial production.

Production under license of a planter for sprouted potatoes is being undertaken, and high-quality potato harvesters from the GDR are assured for this year's harvest.

The detailed "System of Machinery" contained proposals and demands for the importation of higher-quality agricultural machinery and the introduction of new types. These will be discussed in working groups and groups for economic and scientific and technical cooperation among the CEMA member states.

#### Technical Standards, Quality, and Efficiency

The realization of all these goals must take into account the basic requirement, which is the systematic improvement of the technical standards, quality, and reliability of the machinery delivered.

The time is past when agricultural machinery differed from the mechanical equipment of industrial enterprises in simplicity of design, production, and servicing and also low efficiency. The demands on agricultural machines are growing constantly. Until recently, the main criterion of usefulness of agricultural machinery was high output, which assured rapid harvesting and other agricultural work with considerable labor saving. Now, however, other important aspects have come to the fore: efficiency of production and application, low energy consumption, long machine life, high operational reliability, safety and hygiene in use, and preservation of the environment.

Modern agricultural machines are complicated, highly efficient mechanisms, whose design requires the wide use of the most modern elements of automation, hydraulics, hydrostatics, and electronics. Agricultural machinery cannot be produced without the most modern technology, and the automation of production processes will penetrate this industry to an ever greater degree.

Modern agricultural technology places increased demands not only on the producer and the subsupplier but, to no less a degree, on the user as well, i.e., on skilled use and good maintenance.

These basic requirements must be met quickly, with the close collaboration of agriculturalists, machine builders, and other partners in the agricultural-industrial complex, so that one of the main program goals of the 16th Congress of the CPCZ can be met:

"To provide nourishment for the people with maximum self-sufficiency in food production."

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## WASTE USED AS FERTILIZER IN FIELDS

Prague RUDE PRAVO in Czech 25 Oct 84 p 3

[Article by Josef Rerich: "Wastes Fertilize the Soil"]

[Text] The heavy-duty paper sacks are filled automatically, and do not even require any tying. Even so, the contents remain in them. They move along conveyor belts to freight cars, so one has to read what is written on them when they are empty. The most important information is in a box in the smallest type and even in smudged letters, namely, that the contents increase crop yield by 10-25 percent, neutralize soil acidity and contain trace elements.

Most of the fine powder of steel mill lime slag is, however, loaded into tank cars or trucks, which carry it to all parts of the republic. The Trinec Ironworks, therefore, ship not only steel, a huge amount of rolled wire, rails and other rolled materials but also this processed waste, which is used to fertilize fields.

## Struggle With the Mountain

It seems that the Trinec Slag Mill began operations only yesterday, but the time is already counted in years. In June 1980 the mills were started up and by the middle of this year they had already processed 2 million tons of slag. At the same time, the pile that is overlooking the facility does not seem to have noticed. Certainly, if the mill were not at the same time gobbling up new waste products as well, its shovels would be working down that old Trinec Mountain a little faster.

What kind of waste is this? When at the end of July of this year the facility manager, Eng Karel Kublik, calculated what those 2 million tons of slag had produced, he came up with 995,000 tons of fertilizer, 488,000 tons of iron scrap, and 454,000 tons of gravel. Yes, the project had figured on the production of small gravel for use in concrete and on road surfaces, although the market for this building material is not what it was projected to be. It has therefore proved more profitable to crush the slag into a powder usable as a fertilizer. This means that the mills will have more work.



These are special mills. At first glance there are two large rollers, in each of which 75 tons of steel balls grind the slag to a powder. It is a fine powder but it should not be handled, as it would be dangerous for both human lungs and for the immediate vicinity. This is why it is so closely monitored, in some places even exhausted, and why external inspections tend to be very strict.

At the moment that the facility manager informed me of what they were doing to increase the quality of this crystalline powder, representatives of the Czech Technical Atmospheric Inspectorate knocked on the door, engineers Slany and Segeta, and announced that they were going to the plant. There was no need to explain that this was not the first inspection. Their first destination is one of the two separator installations. This is noticeable not only for its size but because of the costly apparatus for capturing dust. "Dust?" says our guide, production manager Jindrich Pindur. "That is our product, after all. Every day we get 80-90 tons of it from the extractor."

#### Impermeable Filter

There seems to be an infinite number of stairs to the upper floors of the filtration station. When, however, your guide opens the door, you are surprised because here you have that miracle that supposedly emits no dust into the air. A multitude of strange-looking bags hangs from somewhere above and ends somewhere down below. Bags? Better to say large hoses, about 30 centimeters wide, of thick woven material. They fill up almost the entire space of the filtration station. How many of them are there?

"There are 720 in one station, so a total of 1,440."

"These are the guarantee that no dust escapes to the environment?"

With an affirmative nod of the head the inspectors indicate that this is the case and that they are satisfied with this separator station.

"But there is certainly no way you can catch everything," I turn to the production manager. "Something certainly must get out."

"Sure, but only about 25 milligrams per cubic meter," answers Comrade Pindur, and adds immediately. "But we are allowed twice this amount."

The multitude of hose filters, therefore, forms a superb curtain for the dust, which is pushed here from the mills with powerful fans. This artificially created under-pressure shakes the powder which has been caught on the material, and the powder then falls down into the tanks. However, for the separator station to perform its mission effectively it must be inspected frequently to assure that none of the hoses comes loose.

## A Dumped Treasure

Even though this new facility at the Trinec Ironworks is called a slag mill and this is its major function, it is absolutely not true that its production is directed only toward increasing the yield from agricultural land. Metal also represents significant economic savings. The largest pieces of iron and steel are picked up by shovels right at the mound, but a large percentage of them are caught by magnets and returned to the blast and steel furnaces.

Recently I saw at the mound at Trinec not only the machinery extracting the slag material but also employees who were using steam shovels to uncover long-buried hearth accretions and other heavy pieces of metal. Some of these weighed a ton! These are the remains of metal from a ladle, hearth accretions "baked" with some slag, etc., which are returned by special trucks to the furnaces. In this way metal that has lain here for decades is again being used as charge material.

These large pieces of metal buried in the mound weigh many tons but are only a fragment of this dumped treasure. Slag with some metal content is transported by truck to a dump adjacent to the mill. During dumping on a grate strong magnets collect some pieces and those that fall through, even the small ones, are caught by a conveyor belt and run through a magnetic separator before the slag gets pulverized in the mill.

## Sharp as a Knife

If you take the pulverized slag in your hand it is fine and smooth, like flour, but much heavier. But engineer Kubik, the production manager, knows another side of the production of the mill. He pulls from a closet a piece of a fan blade and puts it on the table. "Look at this, as sharp as a knife. This was 5 millimeter thick steel. This is what our 'fine' powder can do to it."

It is unbelievable. If you had not held this chewed-up blade in your hand, and if you did not see similarly "chewed-up" blades in front of the mill, you would not believe what this powder is capable of. This is caused by its high abrasiveness, which increases demands on maintenance and repairs generally. This high level of abrasion is forcing the experts at Trinec to find stronger, abrasion-resistant materials, and they are succeeding.

The problems caused by this high abrasiveness, however, are something that the employees of the plant cannot do much about. The effort to produce slag fertilizer in still larger quantities and of still higher quality increases. "This is the reason that we add blast furnace slag to the initial charge," emphasizes the production manager. He adds that they are considering expanding the facility, and it is therefore possible that a feasibility study for a third mill will soon be ready.

This would mean an increase in production by a factor of one third. This is clearly something still in the planning stages, but if agricultural experts could provide some input into the decision they would certainly vote in favor and for ~~more~~ than one additional mill. There is an abundance of raw material in the form of waste, and it is located in more places than Trinec.

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GDR-PRODUCED 4-STROKE VW ENGINES SEEN AS INTENDED FOR EXPORT

Munich SUEDEUTSCHE ZEITUNG in German 15 Nov 84 p 30

[Article by Albrecht Hinze, member of SUEDEUTSCHE ZEITUNG editorial staff:  
"Auto Purchases in the GDR a Trial of Patience: VW Shipments Not Expected to  
Change Years-Long Waiting Times"]

[Text] East Berlin, 14 Nov--A little less than 2 years ago, at the beginning of 1983, Guenther Kleiber, GDR minister for machine building, reported that they were working on the development of a four-cycle engine at the state-owned VEB Motor Vehicle Works in Eisenach. It was conceived expressly for the "Wartburg" produced there, a car that today at any rate--and certainly for another 5 years--is still expensive, loud, gas-guzzling, environmentally harmful and unsuitable for export to the West at least and is chugging in two cycles over the roads of the GDR and the Eastern Bloc. That is also true for the GDR's other, smaller passenger vehicle, the "Trabant" from the VEB Sachsenring in Zwickau. Since then, there has been no more talk of the GDR's own four-cycle vehicle. And after the cooperative agreement now in effect between Volkswagen AG in Wolfsburg and the GDR foreign trade enterprise Industrieanlagen-Import, the announcement by Kleiber may well fall totally unfulfilled into historical oblivion.

The inter-German barter transaction foresees, among other things, the manufacture, probably beginning in 1990, of approximately 300,000 internal combustion and diesel engines in the GDR. Of these, almost 100,000 are to be reexported to VW and just under 200,000 are to be built into the "Trabant" and the "Wartburg." The GDR is thus covering practically its entire passenger vehicle production, which amounted to 188,000 units in 1983.

11-Year Delivery Time

The citizen of the GDR, who must continue to resign himself to a delivery time of between 11 and 13 years for a new car, whether it be domestically built or imported, will not, based upon this contract, be able to have any great hopes for more rapid and increased deliveries. For the time being, rather, he is groping in the dark. Other than a meaningless and mysterious 12-line report

to the road travel law, which was circulated over the media in the GDR, all further information on the law is lacking here. It would also hardly be significant, for there is nothing to indicate that the "provision of goods," or the retail supply of fuel as Hans Herman, is being expanded substantially as even would be. In the years since 1975, through 1982 at least, it declined from 150,000 vehicles annually to 115,000 units most recently.

On this issue as well, there are indications that the GDR, with the planned introduction of four-cylinder engines, is not so much aiming at a more attractive, smoother-riding and environmentally less damaging equipping of the private vehicles for its own population--as needed as it appears to be. That would in any case take years. It is more likely that it is exports that are envisioned. Even in the Eastern Bloc, namely, the GDR's passenger vehicles have recently been hardly as abundant or marketable. There, where delivery times are also long, to be sure, but by no means as long as they are in the GDR, an obvious wait-and-see attitude has become widespread in regard to purchases. The reasons may lie in that announcement by Kleiber or in the fact that in the spring of 1983 the negotiations in progress since mid-1982 between the GDR and VW remain frozen.

#### Export troubles

In any case, the export of East German passenger vehicles to the CSSR, for example, has declined from 26,000 as late as 1981 to probably less than 2,000 this year. Hungary is currently obviously not buying any more vehicles at all from the GDR. These are sales losses that the GDR, because of its CEMA obligations, must compensate for elsewhere, with all of the resulting difficulties in national economic planning and plan implementation. And recently in East Berlin, one also hears the rumor--unverified, to be sure--that beginning as early as next year the CSSR will no longer permit the use of passenger cars produced in the GDR in its environmentally endangered recreation areas. (the High Tatra, for example). This would be a further travel restriction for the citizens of the GDR, who, because of the resulting additional displeasure, could easily become for the state authorities in East Berlin.

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## REASONS FOR WORSENING OF TERMS OF TRADE DISCUSSED

Budapest FIGYELO in Hungarian No 46, 15 Nov 84 p 15

[Article by Laszlo Ersek-Csanadi: "Why Are the Terms of Trade Worsening?"]

[Text] Although showing a declining trend since the turn of the century, the terms of trade in Hungarian foreign commerce have been clearly worsening in the past decade and a half with the exception of 2 years. All this has been independent of whether the world economy is going through a boom or recession. The current annual plan is also prepared for a lag of 2 percent in the rise of export prices as compared to import prices, and a loss for this reason of 60 million dollars. An upswing is perceptible in the world economy, but foreign trade prices have not risen, in fact they have declined. All this has caused the Hungarian economy a greater loss in receipts than expected. The loss stemming from the decline in export prices is over 240 million dollars this year, and not even one-half of this is compensated for by gains on the import side. (See "After the First Nine Months," FIGYELO, No 44, 1984)

Countries with a vulnerable foreign trade structure have been compelled to accustom themselves to a worsening in their terms of trade. After the second oil price explosion, for example, the prices for raw materials did not rise, and in fact the price of oil began to fall after the 1981 record level, something which was explained in terms of the strengthening of the dollar and the worldwide economic recession.

Despite the slowly unfolding economy recovery in some of the developed capitalist countries (primarily the United States) the prices of energy sources and raw materials--and even food prices--continued to decline (calculated, it is true, only in the constantly strengthening dollar), the price position of finished products was consolidated, and in fact their prices slowly began to rise.

On the basis of all these things, the countries that export finished products can justifiably hope for an improvement in their terms of trade.

## Not the Oil Price Explosion

Therefore it would be justified to expect that the Hungarian economy, too, ought to stop the worsening of its terms of trade, and in fact it ought to use the altered foreign circumstances to improve its terms of trade. The reality of all this, however, is doubtful.

Table 1. Export Price Indexes in World Trade (based on dollar prices

	1980	1981	1982	1983	1984/1.n.e.
	1st quarter		Percentage		
Materials	547	104	98	90	90
Petroleum	1343	110	105	93	91
Basic materials (excluding petroleum)	257	93	84	84	88
Foods	286	89	79	77	78
Finished industrial products (developed countries)	253	95	93	93	95

Table 2. Development of Convertible Account Price Indexes in Hungary, 1980 (based on dollar prices, 1972)

	Export	Import
Energy sources	930	748
Materials, spare parts	280	293
Machinery	198	238
Industrial consumer items	226	212
Foods	232	308
Total	237	296
Terms of trade		80

Since 1980 the price indexes calculated on the basis of dollar prices continue to be unfavorable for Hungary.

Table 3. Development of Convertible Account Price Indexes in Hungary Between 1981 and 1984 (based on dollar prices, 1980)

Export	1981	1982	1983	1st half
Energy sources	112.3	98.9	88.1	84.2
Materials, spare parts	92.4	85.7	78.2	78.3
Machinery	96.8	93.0	88.3	86.5
Industrial consumer items	96.2	89.7	82.3	80.5
Foods	101.6	91.2	79.3	74.1
Total	97.1	89.4	80.7	78.1

Import	1981	1982	1983	1st half
Energy sources	121.6	112.5	101.3	95.3
Materials, spare parts	94.2	88.6	82.2	81.2
Machinery	95.9	91.5	85.0	83.8
Industrial consumer items	94.3	90.1	82.9	81.2
Foods	94.4	79.7	74.2	76.9
Total	95.0	88.5	81.9	81.2
Terms of trade	102.2	101.0	98.5	96.2

The losses which have come about in convertible account trade and the losses which are due to the terms of trade were not caused in Hungary by the oil price explosion. (The volume of oil that is imported in dollar accounts is insignificant.) Rather we suffer the losses because more than 60 percent of our imports are represented by various basic materials and foods for which the acquisition price has risen. The price index for foods which have an almost 30 percent share in our exports shows a low value. Finally, the terms of trade have also developed unfavorably in the foreign trade of machinery and consumer items.

Although by and large the price changes for the individual commodity groups coincide with world commerce price trends, the radically declining prices for agricultural products affect Hungarian trade very sensitively. This is all the more true because increased volume exports of these products are necessary and possible because of the export plan.

The divergence in the internal structure of individual commodity groups (in the case of materials, spare parts and some consumer items) is also expressed in prices: while average or low quality mass products are preponderant in exports, the better quality, more highly processed goods dominate in imports.

#### Futile Upswing

With the renewal of the upswing, the price position of processed goods is improving, primarily in the area of those carrying a developed technique. It is precisely in these areas, however, that our lag is significant, not only from a technical-development but also from the production organization point of view.

The picture is apparently favorable in the machine industry on the basis of the comparison of the export-import price index. But unfortunately this does not mean that these export products represent a better quality, more developed production culture, and that is why the price decline is proportionately the smallest one in this case. (It should be noted that it is of a greater extent than in world export.) Here we are speaking of the fact that the price index for the machine industry can be measured with the least exactness--because of the extremely small representation--and here it is in the strongest interest of the Hungarian enterprises--following the rules of the competitive price system--to show the most favorable price index possible.

The present upswing does not result in a significant improvement for Hungarian export products: the demand is expanding only very moderately, and it, too, for the most part is satisfied by better use of domestic capacities. The limitations protecting sub-branches struggling with the structural crisis are not being eased.

In the ruble account trade, where the Hungarian price structure is similar to that of the developed capitalist countries (a ratio of about 2/3 for raw material and energy in imports, and an even greater ratio for consumer items in export), the worsening of the terms of trade has materialized in an abrupt manner. Between 1972 and 1980 the terms of trade worsened by 18 percent--with an import commodity structure substantially "harder" as compared to convertible account trade. The use of a base, calculated on a sliding, 5-year average price, allowed a change in the world market prices only to a smaller extent and in a delayed manner.

Of course, this applies also to the decline in world market prices, because ruble prices do not immediately react to these. Therefore, the extent of worsening in terms of trade will slow down in the next few years.

#### Factors that Depend on Us

What we have said thus far points to external factors that in the terms of trade are independent of us. We must, nevertheless, emphasize in any event those factors which depend on us, and which frequently become important in price developments.

As compared to developed capitalist competition, Hungarian enterprises are not competitive in services related to the delivery of products (guaranteed repairs, free training of operating personnel, installation of equipment, provision of auxiliary products and supplementary spare parts, free advice, and so forth).

An important price-formulating factor is market reputation, or good will. It is important, of course, not only to gain but to maintain this. Uneven quality in brand-name items can affect market confidence in a given product for a long time (unfortunately, as a number of examples have recently shown).

Besides the use value of a commodity, external appearance, make-up and packaging influence price. Products with modern packaging have a price advantage, even if they are much inferior in quality. Outdated packaging detracts from the value of most Hungarian products.

Deadline delivery terms of Hungarian enterprises are too slow as compared to the competition (and in fact the deadline date, too, is often exceeded); immediate shipment from storage is an almost unknown concept, and for the most part it is only possible on occasions of non-current inventory building.

It is a general principle that the greater cost and risk a seller takes on himself, the higher the sale price which he may get. Most Hungarian enterprises do not dare (or cannot) take such risks. An important share of the sales takes place from the factory site or on fco [franco free] border

station terms of delivery, which means a certain price advantage to the buyer. The selection of the currency for a transaction is also an important part of sales revenue. We are not speaking here primarily of the selection of a foreign currency that will make it possible to achieve in forints the best revenue (or in the case of imports, expenditures) but of how we can use to the greatest advantage the difference in exchange-rate changes and in the price increase of the given economic environment recognized as average. (This assumes a certain kind of price and exchange-rate forecast based on deeper market knowledge.) For example, it is clear that the weakening of the FRG mark was greater in the past 1 to 2 years than the inflation rate of the FRG economy, and therefore they sought to make transactions through the importers' mark.

Product quality is perhaps the most important price-formulating factor. It is particularly so in a downswing period when competition is sharper and demand with ability to pay declines. Because of the quality problems concerning Hungarian products we cannot even achieve the average price increase pace of upswing periods. Most Hungarian products belong to the so-called lower quality category. The judgment made on them is further worsened by the fact that complaints are registered on 5 to 10 percent of the delivered goods. It follows from the foregoing that given the present structure of the economy and foreign trade, within the foreseeable future foreign factors will not help to stop or turn around the worsening terms of trade. What we can do is to improve market price position and increase competitiveness by changing factors that depend on us and by exploiting existing reserves.

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## INCREASED PRODUCTION OF GRAIN, BEETS CONTEMPLATED

Warsaw PRZEGLAD HODOWLANY in Polish No 6, Jun 84 pp 33-38

[Article by Dr Andrzej Slabonski, Szczecin Agricultural Academy: "Increasing the Production of Grain and Beets Is the Basis for Feeding the Nation"]

[Text] An increase in the production of grain, especially feed grains and beets, has become the primary agricultural goal. For a long time we have been trying to solve the grain-feed problem so that we could increase livestock production while at the same time decreasing grain imports.

To solve the grain-feed problem and increase meat and sugar production we must intensify the structure of planting by increasing to the maximum the area for planting the most dependable and highest yielding grain, that is, spring barley should be increased to 4-5 million hectares, valuable wheat to 2-2.5 million hectares, dependable high-yielding beet to 1.5 million hectares, and also high-yielding feed crops such as clover, alfalfa, grasses, pod-bearing plants. On light soils lupine, bird's foot, second crops or mixed aftercrops should be planted. The area for planting the above-mentioned crops should be gained by reducing or even eliminating the cultivation of rye, oats, and potatoes as feed crops, and especially corn, which tends to lower soil fertility. I have been advocating this for a long time now in many articles and publications, such as "Increasing the Participation of Beets and Grains, Especially Barley, in the Structure of Planting for the Years 1976-1980," which was published by the Szczecin Agricultural Academy in 1975, and in articles printed in PRZEGLAD HODOWLANY Nos 5/1978, 7/1981, 2/1983 and others.

Corn is not a plant of our climate. When cultivated for grain it does not mature during cool summers. In addition, the cultivation of corn for grain tends to poison the environment with herbicides, usually used improperly to control weeds. It robs the soil of fertility, and after it all plants give a poor yield, especially wheat and barley.

The grain deficit, here as elsewhere in the world, is not connected to bread production, but to the constantly growing demand for products derived from animals. Because of this there has been a growth in the demand for feed grains. Production of these grains is inexpensive because it can be 100 percent mechanized. In comparison to root crops, grains do not need an

intensive labor input during cultivation and are considered worthwhile as the most profitable crops, since they are cheap and easy to produce, to store, and to dispense as feed. Therefore, the amount of grain cultivated for feed around the world is growing. In Poland 70 percent of all grain is used for feeding livestock. Of the domestically grown varieties of grain, barley and wheat have a higher nutritional and feed value than oats and rye.

### Rye Only for Bread

The basic reason that the grain problem remains unsolved in Poland is the decrease in area used to cultivate grains. The surface area has gone from 10 million hectares in 1930 to 6.9 million hectares in 1979 to 6.87 million hectares in 1981. Another factor is the dominant position of rye in the structure of planting. Rye is the most widely cultivated crop (about 3 million hectares), and 80 percent of it is used as feed. Because of its chemical constituents, rye is not a proper component in the feeding of hogs and other animals. It contains too little protein and too many substances which impair the development of animals and cause poor feed utilization by the animal. For this reason rye should not be cultivated as a feed grain, but for bread production only. On a global scale only Poland has the most rye and the least barley in its planting structure. Rye is harmful to animals, therefore more concentrated feed, especially protein, is used to produce each kilogram of pork, almost twice as much as in Denmark, England, and the FRG. All birds know that rye is toxic and prefer to go hungry than to eat and poison themselves with its grain.

Rye has a poor yield and is inconsistent at harvest time. It is the most disappointing of all grains since in cases of heavy snow or rainfall it is destroyed by snow mold, root rot, and ear disease.

The chief reason for this situation is the comparatively small progress made in the cultivation of rye, especially the lack of varieties that are disease-resistant. Rye is a xenogamous plant and difficult to breed; therefore, in spite of much labor, the grains made in obtaining new varieties are small. Progress in breeding new varieties of wheat and barley is much greater than that of rye. A great fault with rye is its tendency to lodge and its sensitivity to diseases, especially snow mold, while the development of new varieties with stiff stalks is not easy. This is why in spite of intensification and fertilizers the rye lodges, succumbs to disease, and its yield is lower.

The most universally used variety, Domestik Złoty, planted in over 70 percent of the regime, has a stiff stalk and good possibilities for a high yield. Under favorable weather conditions and with good agricultural practice it can give a record yield of 5 tons/hectare. But under unfavorable conditions, that is cold winters, it gives a disappointing yield since it is unstable in maturing and very sensitive to diseases such as stalk brittleness, mealiness, rust, and primarily snow mold, root rot, and ear disease. It has a shorter stalk, poor leafing and gives a lower content of green matter, so it is unsuitable as a winter crop. During years of heavy snowfall it gives a disappointing harvest, especially as a winter crop, because if planted early in the autumn time in a heavy snow it is especially prone to snow mold.

Of the remaining rye varieties, Dankowskie Nowe and Chodan have a stiffer stalk and higher soil requirements. They are also susceptible to snow mold and other diseases. The varieties resistant to snow mold that have lower soil requirements are Włoszanowskie and Zeelandskie. These have been withdrawn from cultivation. Instead, Dankowskie Selekcyjne, more resistant to snow mold and with lower soil requirements, is used in 3 percent of the regions. Because of these reasons rye should be withdrawn from cultivation, or curtailed to the necessary minimums, on good wheat and rye soils of classes I to IV. Instead, plantings of barley and wheat should be increased.

Rye should be cultivated only on rye type light poor soils of classes V and VI. After a root crop on light rye soil winter barley should be planted, not rye. After a late harvest of a root crop farmers often plant rye which, because of the late sowing, disappoints with a poor harvest. Better advantage of the poor rye soil would be taken by winter barley in the varieties Gryf, Diva, or Ars. These are resistant to drought and tolerant of light acid soils. In comparison to these varieties, rye has lower requirements than the first crop but is more sensitive to improper agricultural technique and must be sown during the optimal time (the second or third 10-day period in September) and on rested soil.

Rye planted in place after barley, with the use of the correct technique, will give a comparatively high yield. The technique is as follows: 150 to 160 kilograms of seed per hectare and a high level of fertilization with nitrogen, 20-30 kg before sowing, 40-60 kg in the early spring, 20-30 kg during the time the young blades are coming up.

For farms specializing in livestock production much feed can be produced by cultivating barley with a mix of bird's foot or a lupine aftercrop for 2 years after Poly-Plast beets. The following can also be used alternately: lupine--rye (barley) with a companion crop or aftercrop, barley with a mix or an aftercrop.

On class V soils rye occupies 50 percent of the area and farmers sow rye continuously. This tends to spread crop rotation diseases quickly: stalk brittleness, snow mold, root rot, and ear disease. By reducing the participation of rye in the planting structure and increasing the cultivation of barley on poor rye soils the yields of grain can be increased, because then the rye will be less susceptible to disease, and will give a better yield because sowing can take place during the optimal time and with the application of the correct agricultural technique. Only on soils of class IV, rye type, very poor, should rye be planted continuously up to the time that barley which can use these soils can be introduced.

#### Winter Barley

Winter barley develops quickly in the spring, making good use of the winter moisture, is resistant to May drought and gives a good yield, 6 tons per hectare, much higher than rye almost everywhere else in Poland. The very early maturation and harvest for winter barley, about 14 to 17 days earlier than that of rye, is a convenience for the farmers not only from the standpoint of work organization but also because it permits the earlier sowing

of a rotational crop, which, after barley, gives a dependable high harvest of green matter that in turn allows the feed to be supplemented by protein-rich greens. For these reasons winter barley cultivation should be expanded at the expense of rye on fertile soils, and on lighter good rye soils.

The chief reason for the slow spread of barley cultivation was its undependable maturation caused by the low to medium cold resistance of the varieties used. Lately it has been possible to develop domestic frost resistant varieties; Popiel, and especially Maron, like the GDR Borvina and Dilana varieties, distinguish themselves by their high resistance to lodging. For this reason cultivation of winter barley should be expanded in all regions of the nation on wheat soils and good rye soils (classes I to IV).

Among the regions there are several varieties of winter barley: Bekas, Goplanski, Popiel, Maron (5108/69), and Erfa (GDR). The varieties Dura and Vogelwanger Gold from the FRG have been eliminated because of their low frost resistance.

Bekas. This is an original variety, fertile, mid to early, with an average resistance to frost and a high resistance to lodging and disease, especially mealiness. It requires an average soil. Best results can be obtained by cultivating on good to very good rye-type soils.

Goplanski. An original variety, fertile, mid to early, with average frost resistance and a high resistance to lodging. The protein content in the grain is high. It is resistant to mealiness, but somewhat susceptible to rust. An average soil is required. It is best cultivated on good to very good rye-type soils.

Popiel (5081/69). This is a new original variety, fertile, with good frost resistance and a high resistance to lodging. It has good resistance to disease, but requires a high quality soil. It is dependable in maturation in specific years and regions. It is best cultivated on soils of the good rye type in the northern and western regions.

Erfa. This is a variety developed in the GDR. It is fertile, mid to early, with short stalks, resistant to lodging and diseases. The mass of 1,000 grains and protein content in average. It gives the best yield in the central northern and southern regions. This variety requires a high-quality soil. It is best cultivated on soils of the good to very good rye type.

Maron (5108/69). This is a new domestic variety. It has good winter endurance and high resistance to disease. Its resistance to lodging is average, and in this aspect it is inferior to other varieties. Climatic and soil requirements are average. Its greater resistance to frost and good yield make this variety a first-class candidate for cultivation in the eastern regions on good to very good rye-type soils.

To obtain high yields of barley the correct agricultural technique must be applied: between 5 and 15 September 140-150 kg/hectare, with the proper mineral fertilizer, especially nitrogen. Fertilization with phosphorus and potassium should be done before sowing barley. A high dose of phosphorus

in an easily absorbed form helps the plants to gather a sufficient amount of sugar in the cell fluids before winter. This is what decides the hardness of the plants and increases their resistance to cold. The recommended doses of phosphorus are 54 to 60 kg of  $P_2O_5$  per hectare (300-500 kg of 18 percent superphosphate); potassium is to be applied at 60 to 120 kg of  $K_2O$  per hectare (100-120 kg of 60 percent potassium salts) depending on the quality of the soil and the level of nitrogen fertilization.

On the whole, nitrogen fertilization should be done in the spring, as early as possible, in the amount of 60 to 120 kg of N per hectare, preferably in the form of ammonium nitrate, but a large dose should be divided into two parts. Apply the first 30 to 60 kg of N/hectare as early as possible. The second dose, 30 to 40 kilograms per hectare, should be applied during the early stage of blade development. High doses of nitrogen should be applied to the poorer soils (after plantings of grain) and during the cultivation of high-yield, nonlodging varieties such as Bekas, Popiel, and Erfa. On lower quality soil and less fertile plots nitrogen fertilizer can be applied in the autumn, especially after grain plantings. Use 20 kg of N per hectare, that is, 50 kg of urea, the remainder to be applied in the spring.

When higher nitrogen doses are used, the preparation Flordimex 1 (previously known as Compostan) will prevent lodging. This is a growth regulator in liquid form and is used to stabilize the blades of rye and winter barley. This preparation not only improves the resistance to lodging but also tends to increase the grain quality and the barley yield. During barley cultivation it is applied in the early phase of blade growth in the amount of 3.5 liters per hectare, which is dissolved in 100 to 300 liters of water, and the mixture is then sprayed on the plants. Because in the cultivation of grain the higher the growth the greater physical damage that is caused by mechanical apparatus, the treatment should not be done after the formation of the second blade bunch. After that, aerial spraying may be used. Flordimex should be used on days free from precipitation. Rain should not fall until at least 2 hours after spraying, otherwise the effects will be limited. Very cold weather can also delay successful results of spraying.

Flordimex is only slightly toxic. It is nontoxic to humans and animals, and only slightly toxic to fish. Straw sprayed with the preparation can be used as animal feed without any reservations.

#### Improving the Quality and Dependability of Yields in Winter Wheat

In Poland the dominant varieties have been frost and disease resistant, and of good quality. That is why winter wheat has always given a dependable yield.

Lately the wheat harvests have been disappointing because COMBIL (Main Center for Crop Variety Research) regionalized and brought into cultivation poor-quality varieties that had just to average frost resistance and were more sensitive to disease. These were Luna, Grafit, Irena, Dama, Jagna, Babil (domestic); Helma, Alcyon, Marlin, Montano (foreign). Instead of frost-resistant varieties with good grain quality, both foreign and domestic (Woskolitecka-Nietkowska, Olan, Gromoska Biala, Eufrosinka, Skalska),



Kutnowianka, Przodownica, Elka Nowa, Kaukaz, Aurora, and lately Belenka, Mironowska 808 and others) have been withdrawn from cultivation. New varieties were never introduced into cultivation: BOD (frost resistant, resistant to mealiness) and G 2060. The last strain in COBORU experiments during 1973-1975 gave the best results in 1974 at the Grana variety level. It had good qualities: resistance to mealiness, to rust, to stalk brittleness, to snow mold, to ear disease, to lodging with comparatively long stalk. That is why it did not let broom weed overgrow the field as in the case of the Grana variety, where the weed causes lodging.

In 1976 variety 2346 was not noted into the official log or accepted for testing. This variety distinguished itself by very high frost resistance, good quality in baked goods, resistance to stalk brittleness, to mealiness, to rust, to other diseases and to weeds in the field. In initial experiments performed during 1972-1975 it gave better results than Grana, especially on lighter soils. This breed has two rye chromosomes instead of two wheat chromosomes.

Bringing the G2060 and G2346 varieties into cultivation would have increased the dependability of maturation and would have limited the spread of dangerous plant disease especially the blade brittleness with which Grana has infected our fertile soils. It is a variety with poor baking characteristics, in favorable conditions it can give good yields but is undependable in maturation, has average frost resistance, is sensitive to snow mold, rust mealiness, septoria, but especially stalk brittleness. These diseases were virtually unknown in Poland but increased dynamically after the introduction of Grana, which tends to spread rotational crop diseases such as rot of the stalk base and stalk brittleness, and infects the soils with them. By having the majority of regions cultivate varieties sensitive to the above-mentioned diseases very serious soil infection can result, especially stalk brittleness, and then winter wheat will not give a satisfactory yield.

Grana has infected the environment, especially the fertile soils, with disease, especially rotational crop disease (stalk brittleness), which is why wheat has had such bad harvests in recent years: in 1974 3.2 tons per hectare, in 1979 2.7 tons per hectare, and less in Suwalki--1.6 tons per hectare with a large area being plowed under and sowed with barley because of snow mold damage and other diseases--and in 1980 2.6 tons per hectare because of massive leaf spot and other diseases. Recently Grana has been responsible not only for a lower yield but also for lower grain quality and the shrinkage of wheat cultivation from 2.1 million hectares in 1974 to 1.5 million hectares in 1979 to 1.4 million hectares in 1981.

Because frost-and-disease resistant varieties have not been introduced into cultivation, especially in the eastern part of the country, farmers are reducing the amount of surface used for wheat cultivation, since this plant is no longer dependable in its yield, often freezes, and is destroyed by disease.

In order to increase wheat production, which would assure dependable and high annual harvests not only on fertile soils but also on good rye soils, COBORU should introduce not only intensively cultivated varieties which are sensitive

to disease and unfavorable conditions, but because of our changeable climate it should introduce varieties that give good quality grain, have high frost resistance, resistance to disease and to acid soils.

Recently several new varieties which are relatively frost resistant were introduced: Saga, Liwilla, Emika. These are inferior to Mironowska 808 in grain quality and frost resistance. The varieties Salwa, Rota, Jawa (St 831) are high yield, with average frost resistance, resistant to lodging, mealiness, and rust. Panda has good quality grain but poor frost resistance. Gama, a high-yield variety, has good quality grain and high frost resistance. The following varieties were removed from cultivation: Holme, Maris, Huntsman, Luna, Dana.

Winter wheat has great economic significance. It is widely used in foods for human consumption and as feed for animals. On fertile soils especially it gives high yields when the correct variety and agricultural technique are used. For these reasons it is necessary to increase the surface area for winter wheat cultivation on wheat soils and on very good and good rye soils of classes I to IV totalling 2 to 2.5 million hectares.

#### Winter Barley on All Soils

The cultivation of barley varieties that are adapted to soil and weather conditions in specific regions is easier and gives faster results than the cultivation of other grains. For this reason, on a global scale, barley is cultivated on all soils, on acid sands and bogs. Varieties are selected and bred to be compatible with different soil types.

On the basis of experimental results COBORU has worked out the regional plan for 1983 in which foreign varieties have major participation. These varieties have high soil and agricultural technique requirements: Aramir, Athos, Grit, Havila, and Koru. Only Ars and Diva are proper for light acid soils. Polon, a brewer's variety, is resistant to drought, has lower soil and agricultural technique requirements, but is cultivated only in a small percentage of the regions.

For 1984 two new domestic varieties have been introduced to the regions: GOH 380 and MOB 181. In COBORU research these varieties exceed Armira in yield, in resistance to lodging, and in resistance to disease. In 39 WOPR [Provincial Center for Agricultural Progress] experiments organized by IUNG [Institute of Soil Cultivation Fertilizing and Pedology] during 1983, GOH 380 took first place and surpassed all tested varieties in yield at 3.97 tons per hectare, MOB 181 yielded 3.89 tons per hectare, Athos yielded 3.75 tons per hectare. This last variety was removed from cultivation in 1984. Ars (GOH 480), an original domestic feed variety, exceeded all regionally cultivated varieties in protein content. It is high yield, mid to early, resistant to acid soils, to drought, and to disease. It is a universal variety that can be cultivated anywhere in the country on all types of soils, fertile as well as light, acid, and good to poor rye type, to which it easily adapts. It can contribute to increasing yields and spreading the cultivation of barley into acid and light soils. Ars is being evaluated in government experiments in all the CEMA countries.

Resistance to acid soil has been checked by the Kaminski method. This same method was used to check the very high resistance to acid soil of variety GOH 682, which in 1983 took first place for yield in COBORU tests, surpassing all other varieties. COBORU accepted varieties GOH 782 and GOH 883 for testing. These are very resistant to acid soil, drought, diseases, and can be cultivated on lighter acid soils. In initial experiments these breeds are being tested for resistance to acid soils. The results will be listed among COBORU experimental results.

The main hurdle to widening the cultivation and increasing the barley harvest is the small amount or even the total absence of varieties proper for cultivation on very poor light rye soils. This happens in spite of the fact that plant breeders bring to COBORU new varieties every year, varieties that have higher yield than foreign ones and are adapted to our climatic conditions. Some are suitable for light acid soils and poor or very poor rye soils.

Withdrawing rye from cultivation on fertile and medium fertile class I and IV soils and expanding the cultivation of barley, which has a rather short vegetation time, will help to control rotary crop disease (breakage of the stem base). It will also increase the per hectare yield, especially in plant protein. Conditions will be created for obtaining two harvests per year, barley and an aftercrop or a companion crop. Supporting the cultivation of aftercrops and companion crops is the fact that they have a positive effect on the fertility of the soil.

Companion crops of grass, especially bunched grasses, give the best chances for producing inexpensive additional green feed. The universal cultivation of grass as a companion crop or an aftercrop to grain give great amounts of highly valuable feed at a time when there usually is a shortage of green feed. Barley with a companion or aftercrop yields more feed than corn and potatoes; 4 tons of barley grain per hectare has the same feed value as 23 tons per hectare of potatoes. At the same time one gets valuable straw and 10 to 20 tons per hectare of postcrop green matter. That much green matter is yielded by corn as a main crop during a cool summer. Animal husbandry brings a high income when the animals are fed with feed produced as an aftercrop: the aftercrop, the companion crop, beet leaves, byproducts, barley straw, and minimally, as the main crop, grass, clover, alfalfa and Poly-Past beets.

#### Potatoes Only for Consumption and Export

Potatoes do not give a reliable harvest because they are prone to many diseases (the most dangerous being virus diseases and potato blight) and pests (the potato beetle is labor intensive, unhealthy, and one should not poison the soil with chemicals harmful to humans and animals just to raise feed and supply the distilleries. By placing limits on the cultivation of potatoes for feed and as raw material for distilleries we can curtail the spread of the potato beetle, and consequently make attempts to control it easier. Poly-Past beets yield much more feed even on lighter class V soils than potatoes. Therefore, potatoes should only be cultivated for human consumption, for industry, and export; byproducts and small spuds should be used as animal feed. Feeding hogs with potatoes is labor intensive and unprofitable. Barley, green matter, and beets are more hygienic, cheaper to produce and dispense and, unlike potatoes, do not have to be steamed.

## The Beet Gives the Most Dependable Harvest and Highest Yield

The greatest amounts of feed on plowed soils can be produced from sugar and sugar-feed beets. Up to now beets were not appreciated as feed plants. But in our climatic conditions beets are plants that are most productive and give the most dependable harvest, thanks, among other things, to their long vegetative period (they continue growing until late autumn), the large active surface of the leaves and good response to mineral fertilizer, especially nitrogen. Beets do not have a critical period during which they require a lot of water. During drought they do tend to wilt but do not perish, with new rains they recover, continue to grow and give a high yield. Beets are not sensitive to disease, pests, excessive precipitation or drought (a fact that was confirmed in recent years). They produce more feed than any other plant, much more than potatoes or corn. Even when cultivated for industrial purposes they produce, as byproducts, more feed than corn.

Many experiments in animal feeding have proven that both feed and sugar beets are suitable as animal feed. Sugar beets can be especially well utilized in feeding hogs, and may be a substitute for potatoes in this case. When fed to hogs, beets, unlike potatoes, do not have to be steamed, which this lowers the costs of hog production, allowing for a savings in fuel. The semisweet Poly-Past beet should play a greater role in the feeding of cattle, especially milk producing cows, and sheep because of the beets' digestibility and taste, which seems to be preferred by ruminating animals. In feeding calves chopped beet roots with an additive of urea can be substituted for nutritive feed and will supply 60 percent of the needed protein. Beets can also produce dry feed which, in part, can be used as a substitute for grain in a nutritive feed mix.

Through the use of intensive fertilization with nitrogen, sugar and semisweet beets can be cultivated as the main crop and a second crop if sown before 15 May. Together the harvest of solid matter and raw protein from the winter crop's harvest (rye) and the second crop (beets) is much higher than from beets as the main crop.

Beets make better use of the environment after postcrop rye than either potatoes or corn. The main reason for this is the rather long vegetative period for beets. Corn and potatoes stop growing at the end of September (autumn frosts), but beets continue to grow rather intensively almost to the end of October. The results of experiments conducted in Malyszyn show that beets endure summer drought better than potatoes or corn, as either the main or secondary crop.

With the use of a high level of mineral fertilizer (over 350 kg NPK [nitrogen-phosphorus-potassium] per hectare) beets can be cultivated with success not only on good soils but also on poorer highly cultivated class V soils, and more feed can be produced than from potatoes. The cultivation and harvest of beets can be more fully mechanized than that of potatoes, especially on large fields. Manual labor can be completely eliminated, which cannot be done in the case of potatoes. This is made possible by supplying farmers with single sprout seed, serviceable machinery (seed planters designed for point planting and harvesters), and herbicides.

## Conclusions

--The area for cultivation of grain must be increased to between 8.5 and 9 million hectares: barley, 4 to 5 million hectares; wheat, 2 to 2.5 million hectares; rye, 1 million hectares; oats, 0.5 million hectares.

--On the lightest, very poor rye-type soils, rye should be planted only up to the time that a proper variety of winter barley is developed and put into cultivation.

--On light rye-type soils that are poor, grain should make up 65 percent of the planting structure, of which 35 percent should be barley, 25 percent rye, and 5 percent oats. On fertile and medium class I to IV soils grain can take up 55 to 60 percent of the planting structure, wheat 25 percent, barley 30 percent, and oats 5 percent.

--The number of barley varieties in regional cultivation should be increased to at least 15, of which 5 should be for light acid soils of class IV, V, VI rye type, good, poor and very poor; also needed are winter wheat varieties that are frost resistant, resistant to acid soils, with lesser soil requirements, for intensive cultivation on acid, good rye-type soils.

--The cultivation of barley with a companion or aftercrop must be widened, using grass, clover, alfalfa, beets (10 percent of the planting structure) as the companion or aftercrop. This must form the basis for increasing the production of animals based on home-grown, inexpensive, and healthy feeds.

12411

CSO: 2600/94



# PROVINCIAL STATISTICS UNITS URGED TO UPGRADE REPORTING PRACTICES

Warsaw WIADOMOSCI STATYSTYCZNE in Polish No 9, Sep 84 pp 27-30

[Article by Engineer Jerzy Radecki of the Main Office for Statistics [GUS] Department of Production Resources and Finances: "Some Proposals Concerning the Form and Content of Reports Prepared by Provincial Statistical Bureaus on the Financial Performance of Enterprises"]

[Excerpt] The contents of the WUS [Provincial Statistical Bureau] publications for 1983 and for the individual months of this year's first quarter that have been sent to the GPs indicate that very few WUS's\* incorporate extensive financial results for enterprises in their information on the current evaluation of the economic situation in the given territory. For the remaining WUS's, the information is provided in the reports sporadically or as an aside or, in general, is not considered at all by most WUS's.

Such a situation is odd if one considers that it is still occurring 3 years after the economic reform has been initiated. Financial results are the basic measure for evaluating an enterprise's activities under economic reform conditions, and net profitability and rate of profit are among the primary measures of the effectiveness of their management. But some WUS's do not inform their recipients about these indexes and about other economic relations and categories. This information exists in the WUS's and is generated at great expense in financial and personnel resources. This information is available within the proper time frame (the information can be obtained from the Information Center or the appropriate Electronics Center within 25 days of the end of the report month). Thus, it is difficult to understand why this information is not published.

One can agree with the statement that this is a difficult problem, one that requires proper preparation by those preparing the data and analyses as well as by the recipients of the publication concerning the covered time period.

However, one cannot agree with the opinion that this information is not really needed. Even if such an opinion is expressed, then the designated WUS is also partially at fault for this state of affairs since it probably supplies this information in a very uninteresting manner.

\* The WUS's are as follows: Katowice, Olsztyn, Ostroleda, Skierniewice, Czestochowa, Bydgoszcz, Bielsko-Biala, Krosno, Koszalin, Torun, Legnica, Elblag, Gdansk, Sieradz, Ciechanow and Lublin.

The reform's systemic solutions cannot be ignored. Thus, the financial results of enterprises must be prepared and published.

We are more than anxious to help those WUS's that have tackled this problem and disseminate more information to their clients in their current publications. We want to expand and improve the work by accomplishing what follows below.

### Scope and Layout of the Publication

In my opinion, it is a fact that the basic problem is that practically all WUS's develop financial information according to the central model without seeking their own solutions, without trying different arrangements or the facts or without adapting the publication to satisfy local needs.

In most of the examined cases, the "national viewpoint" is maintained at the provincial level (the country in miniature). The same classifications, analogical descriptions and analogical tables are used, and even the financial problems are presented in identical locations, that is, most often at the end of the analytical notes or tabular sections. For example, if a described situation in a given sector of the national economy is described in the descriptive part, then all the other indexes, mainly numeric, are provided here, except the financial results of this sector. The reader learns about this independently at the end despite the fact that, as discussed above, we are talking about one of the basic measurements for evaluating a sector or enterprise. The net result is the factual results are not linked with financial results (with the exception of those to be discussed later), presenting specific facts separately as if they were not organically and systematically linked.

### Analytical Notes

Analytical notes are limited most often to the discussion of financial results (what increased or decreased and by how much) without any attempts to evaluate the causes and effects. We neither expect this from the WUS's nor even encourage them to make these evaluations. Currently there are so many exceptions being made to the financial system's rules, exemptions, payments and compensations, and the decisions made by financial organs and superiors with respect to specific enterprises, that one must know all of them to comment on the obtained results properly.

However, I believe that a description of the facts and getting the recipient's attention to focus on the basic problems meets a need, and this trend should be continued, especially during the initial phase when the users learn to read and link individual facts. However, this statistical description should be diversified. I would like to make several proposals in this area below.

Often an analytical description is limited to a specific sector or selected theme. The WUS's often present export sales or write about the province's exports. It is their own local propaganda of success, because the amount of export from a province cannot be determined either on the basis of the PAB financial report or the Fe invoice. The exports are not known, but supplies received for export purposes are known. The exports take place or they do not.

and not necessarily in that reporting period. In addition, it is a fact that a good exported from a given area and often is not credited to the given province but rather is haphazardly credited to an enterprise having the right or capability to export in the given territory. For example, if dairy or meat products are exported, it does not mean at all that this applies to animal products from the given province.

I believe that WUS's should focus their attention on that group of enterprises that are designated by name and describe the sales of their products for export. This is all that can be written about this subject.

#### How To Improve WUS Financial Information

Concerning current information, not much more can be proposed than has been discussed above (linking factual information with financial information, dynamic approach, directing information to units that are subordinate to a governor). The time frame in which this information must be developed most often limits the scope of this information. However, if the WUS's have the capability and need to develop a more extensive financial analysis of enterprises, I propose that the experiences and accomplishments of the Department of Production Resources and Finances in this area be used eventually. The department's goal is to improve the analysis of subjective and objective data by grouping enterprises for example, according to designated characteristics and by introducing elements of statistical analysis.

One of the specialized developments is the information concerning the 500 manufacturing enterprises (except the power industry) arranged according to amount of income from primary sales.

The Table 1 information will be published this year in issue No 6 of the monthly ZARZADZENIA that is available via subscription.

The source material for developing the data are the F-01 and F-02 financial reports, Form P-03x (for compensation) and Form P-01 (for employment). Other financial reports, for example, the F-rl, will be added in the future.

The open disclosure of achieved financial results for selected enterprises should enable changes in the management of these enterprises to be monitored. Presently, statistical data in such a form can help to propagate among the enterprises the ideas of enterprise and competitiveness in the area of achieved results and evoke a stronger response from them regarding economic tools.

This initiative appears to be useful for the central authorities as well as the enterprises because publishing the basic data from enterprise balance-sheets should create a favorable climate to improve their operations and to increase concern about the efficiency of operations. The purpose of distributing such a publication is based, among other things, on the resolutions of the "Program to Counteract Inflation," which indicates the need to inform the public about the economic results of enterprises.

As indicated in the discussed Table 1, enterprises are arranged (within the framework of the mentioned 500 enterprises) according to achieved financial results, net output, employment, average wages, net profitability and internal funds in circulation.

In conclusion, I would like to mention briefly some other figures (analytical summaries) that can be developed on the basis of the "full" report:

--examining the arrangement of socialized enterprises according to the type of profitability and net profitability (in the sideline, the divisions of profitability; and in the heading, the number of enterprises, their share of sales, profits, income tax, allowances, PFAY (Public Vocational Action Fund), unjustified costs and losses);

--the extent of socialized enterprises' internal financial resources for expansion (on the sideline, the division of profitability; and in the heading, profits for distribution, depreciation, the status of the development fund, and so forth);

--the number of enterprises, sales, financial results and income taxes (on the sideline) according to divisions of profitability (in the heading).

Examining the share of compensation in net production and the share of compensation in the financial results (Table 2) is an example of linking financial results with the data for a factual report (except Table 1).

Regardless of the cognitive worth of the presented analytical summaries, the examination results must be supplemented with suggestions and comments. To improve the contents of the analytical notes, the local community of practicing economists, especially in the academic community, should take an interest in these examinations. These specialists should familiarize themselves with the statistics and improve the system of information (the app.).

In formulating these postulates, the complaint may be made that the time and resources available to the WUS's are not adequate. I also believe the execution capabilities of the computer system, especially during the software phase, can be a more serious problem. The difficulties can be resolved in part by using standard programs or appropriate standard programs.

11899

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## FIFTH POWER UNIT SLATED FOR STARTUP AT BELCHATOW

Warsaw ZYCIE WARSZAWY in Polish 8 Nov 84 p 1

[Text] This year's most important task for builders and power engineers at the Belchatow power plant is the startup and incorporation into the network of the fifth, 360 megawatt power unit. The full implementation of this undertaking would signify the fulfillment of tasks imposed by the resolution of the Council of Ministers concerning the development of the Belchatow industrial area and the placing in operation of two power units annually.

According to information given to the PAP reporter by the general manager of the Belchatow power plant, Tadeusz Kolcz, "intensive construction-assembly and start-up work is currently under way."

After achieving full production potential, the Belchatow power plant will have a power output of 1,800 megawatts. The placing in operation of the sixth power unit will constitute the implementation of half of the entire undertaking, since altogether there will be 11 360-megawatt power units in operation here.

The first four power units at the power plant are working very well. Power engineers predict that by the end of this year they will provide the national economy with approximately 7.3 billion kilowatt-hours of power. This would indicate that the plan assumptions would be surpassed by 1 billion kilowatt-hours.

9853

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## WAGE AGREEMENT REACHED AT FSO

Warsaw RZECZPOSPOLITA in Polish 30 Oct 84 p 5

[Article by B.P.]

[Text] The general meeting of the representatives of the FSO [Automobile Factory] work force on the 29th of this month expressed a positive view of the draft wage agreement plan which will encompass the 24,500-member work force of one of the largest enterprises in the country. This includes not only the 14,000-worker factory in Warsaw but also a dozen or so branch plants which make up the FSO.

The view expressed by the self-government body makes the issue of signing the agreement practically a certainty, since its content had already been settled earlier with trade unions. The meeting of the representatives turned to the manager of the enterprise for the earliest possible introduction of the new wage principles, which are judged to be more motivational and at the same time more simple and readable for the workers.

According to assurances made by Edward Pietrzak, general manager of FSO, the financial-accounting services of the enterprise will prepare, as early as in November, a computation of the first new wage payments, which will include a comparison of that which a worker will receive according to the new principles with that which he would have received according to the existing principles. It is assumed that if the opinion-taking process proceeds rapidly, it is possible that the new wage system will go into effect at FSO as early as 1 December of this year.

Despite the long, 7-month wage agreement negotiations with the work force, the opinion reached at the representatives' meeting was not just a mere formality. During the course of deliberations, which lasted several hours, and after listening to the opinions of two experts appointed by the self-government body, those gathered voted in the majority for the earliest possible introduction of the new wage principles. We shall return to the problems associated with this in a more thorough analysis.

9453

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## POOR CONDITIONS OF NATION'S BRIDGES NOTED

Warsaw RZECZPOSPOLITA in Polish 30 Oct 84 p 4

[Text] Warsaw is preparing for a large-scale overhaul of the Poniatowski Bridge. This overhaul necessitates the reorganization of vehicle traffic in a large portion of the city. There will be many inconveniences and problems as a result. However, Poniatowski Bridge is not the only bridge in Poland in need of repair.

The technical condition of bridges and viaducts is rated as good in only 20 provinces. On the other hand, bridges and viaducts in the following provinces received particularly poor evaluations: Warsaw, Gdansk, Olsztyn, Elblag, Jelenia Gora, Kielce, Katowice, Walbrzych, Bielsko-Biala, Krakow, Nowy Sacz and Przemyśl. The state of disrepair which occurs there greatly decreases their load-carrying capacity and necessitates major repairs, modernization and reinforcement. At the beginning of this year, there were 123 bridges and viaducts and 112 footbridges on the list of the most pressing needs. Unfortunately, this group includes structures whose period of use has not yet surpassed 25 years, which does not speak well of the builders.

In general, bridges and viaducts do not constitute structures which bring pride. Approximately 40 percent of them have a load-carrying capacity of barely 10 tons, while half of this group is capable of supporting only up to 5 tons. Structures of semipermanent or temporary construction constitute 15 percent. They are, in general, of wood construction and used beyond their life limit, i.e., beyond 25 years. Approximately 80 percent of the bridges and viaducts built 80 years ago do not meet the requirements of current road-clearance.

A plan has been prepared for restoring a proper technical state to Polish bridges and viaducts. By 1990 the overhaul and modernization of 371 bridges and viaducts and 137 footbridges is envisaged, while between 1990 and 1995 another 434 bridges and viaducts as well as 141 footbridges will undergo modernization. Regional bridge repair enterprises will arise, particularly in those provinces where the need is the greatest.

9853

CSO: 2600/186

## BRIEFS

**FREIGHT HANDLING AT GDYNIA**--After the completion of the annual transshipping tasks 20 months ahead of schedule by the port of Gdansk, the workers at the Gdynia commercial seaport have announced a similar feat on the 6th of this month. Beginning in January of this year, the dockworkers at Gdynia have transshipped a total of 9.5 million tons of various goods, which constitutes an increase of more than 28 percent in comparison with a similar time last year. The largest share--which is exceptional here, as well, because this is a port which handles mainly general cargo--is made up of coal transshipments. They were nearly twice as large as last year. The annual task implementation indicators for transshipments of liquid fuel and ore have also been surpassed significantly. However, grain transshipments are much smaller due to this year's good harvest here at home. On the basis of announced ship arrivals, it is envisaged that by the end of this year a total of 11 million tons, i.e., over 3 million tons more than last year, of various goods will be transshipped here. [Text] [Warsaw ZYCIE WARSZAWY in Polish 7 Nov 84 p 1] 9853

**COPPER MINE EXPANSION**--In accordance with the decision of the workers self-government at the Copper Mining and Metallurgical Works (KGHM) in Lublin, an expansion is under way--financed with KGHM's own funds--of the Sieroszowice Mining Plants, the youngest and at the same time the largest mine, in terms of area, in the Legnica-Glogow copper region. The ore from the Sieroszowice mine covers nearly 100,000 square kilometers and is one of the most valuable in the basin. The deposits extend 1,200 meters in depth. However, they create mining problems because 80 percent of them do not exceed 3 meters in thickness. The basic capital investment work is concentrated on the building of mining shafts. The greatest progress has been achieved on the main shaft SW-1. It has already been sunk and it is currently being equipped. Annually, 2.7 million tons of ore will be mined in it. It is projected to go into operation during the first half of 1986. [Text] [Warsaw ZYCIE WARSZAWY in Polish 5 Nov 84 p 2] 9853

**POWER COAL CONSERVATION**--The newly built Polaniec power plant in the Tarnobrzeg Province is obtaining very good production results. It provides 1,600 megawatts of electric power. From the beginning of the year, the workers of this plant have provided 7.269 billion kilowatt-hours of electric power, which is nearly 10 percent more than had been planned. At the same time, more than 20,000 tons of bituminous coal have been conserved. As early as during the first days of September, this plant was the first in the country to report the completion of its repair campaign and currently has at its disposal eight 200-megawatt turbine sets. [Text] [Warsaw TRYBUNA LUDU in Polish 24 Oct 84 p 1] 9853

## RESULTS IN APPLICATION OF NEW FINANCIAL-ECONOMIC MECHANISM

Bucharest REVISTA ECONOMICA in Romanian No 46, 16 Nov 84 pp 34-35

[Article by Gh. Nicolescu: "The Resolute Implementation of the Economic-Financial Mechanism as a Contribution to the Qualitative Development of the Economy"]

[Text] Since the 12th RCP Congress, within the framework of our party's and its secretary general's consistent concerns with continuously improving the system of economic leadership, major contributions have been made to forcefully asserting the economic-financial mechanism, which has been instrumental in the qualitative development of the economy and in steadily raising the living standard of all working people. Comrade Nicolae Ceausescu's particular merit is that he made an original and noteworthy contribution to substantiating and continuously improving the scientific, efficient, and democratic leadership of the economy and of the society, proceeding from the need to continuously adjust the economic-financial mechanism to growing development requirements and from the rich experience gathered in building socialism.

All the noteworthy achievements in the country's socioeconomic development with which our people prepare to meet the 13th RCP Congress are inseparably linked to the increasingly efficient implementation of the new economic-financial mechanism, which has contributed to substantially enhancing economic efficiency and increasing the national income and the wealth of the society. One of the defining elements of the new mechanism is Comrade Nicolae Ceausescu's original concept of basing all activities on the principles of workers self-management, self-administration, and self-financing, principles which are aimed at blending uniform leadership--based on the single national uniform plan--and efforts to build a comprehensively developed socialist society with enterprise economic-financial autonomy. The effect of this policy was to increase the conscious and responsible participation of all working people and of all our people in the process of managing the society and the economic units, and at the same time to strengthen the responsibility of each enterprise for the fulfillment of all plan provisions and for the best possible utilization of our productive potential. In the current 5-year plan, the economic-financial self-management of each economic unit is being consolidated by increasing the contribution of collective leadership bodies and of all the working people to achieving superior results in: financing the expenditures of each enterprise out of its own revenues; achieving larger profits and a productivity matching the material and cash resources expended; utilizing profits to secure the funds required for the development of the unit and achieving a high degree of self-financing; utilizing profits to provide material incentive for the respective collective of working people and achieving a high degree of profit sharing;

utilizing profits to reimburse funds received from the society in the form of investments and liquid assets; increasing the unit's contribution—out of the profits achieved—to general socioeconomic development funds. The improvements made in the economic-financial mechanism are designed to ensure the conditions necessary to bolster the self-management of each socioeconomic unit that currently has the means to fully and efficiently discharge its duties and responsibilities within the national uniform plan of socioeconomic development of the country.

Under the new economic-financial mechanism and in the process of implementing workers self-management and consolidating economic-financial self-administration and self-financing, the bodies of collective leadership of socialist units have a budget of incomes and expenditures; this constitutes the basic tool of financial management, analysis, and supervision that reflects in terms of cash the activities carried out and their efficiency. In keeping with the attention paid in the current 5-year plan to increasing the role and importance of the income and expenditures budget from the viewpoints of its compilation, implementation, and utilization as a tool of effective leadership of the economic and financial processes of each unit, as of this year, each factory, section, building site, farm, and organizational subunit of an enterprise must work out income and expenditures budgets featuring the respective production tasks and expense limits, with a view to permitting collective decision-making bodies to resolutely implement the principles of workers self-management and self-administration in each enterprise subunit.

In order to consolidate self-administration, special attention has been paid to providing the necessary conditions for obtaining superior efficiency indexes, which reflect the final results of work: profits and profitability. The endeavors of working people's collectives to enhance the efficiency of all production activities have been helped along by the improvements made in the indexes expressing tasks which reduce production costs—particularly material costs—raise the technical and qualitative level of products, and increase the degree of utilization of raw and other materials, fuel, and energy. At the same time, at the initiative of the party secretary general, special programs have been worked out providing specific technical, technological, and organizational measures designed to help continuously raise the efficiency of all activities. As a result of the implementation of these measures and of the greater initiatives offered the working people for obtaining maximum financial returns from work less invested or spent in production, in 1973 profitability in the national economy was of 17 percent, while in the first 9 months of this year production expenditures dropped by over 5 billion lei; if we add to that the 7 billion lei in costs reductions achieved in 1973, it results that in less than 2 years we saved over 13 billion lei, a figure that will be considerably exceeded by the end of this year, thus permitting larger profits and ensuring the stability of all categories of prices.

It is important to stress that the aim was to ensure not just appropriate profitability in the economy as a whole or within a ministry as a whole, but in each enterprise and for each product, in close connection with the real production effort expended; the profitability level in the auxiliary industries industry has recently been limited. Thus, the Political Executive Committee of the RCF Central Committee decided to establish maximum profitability limits for



certain products and types of work. For products and subassemblies delivered by auxiliary industries and for repair work on machines and equipment profitability was limited to 10-15 percent and 8-12 percent respectively; that will bring great advantages to the national economy, since on this basis production and delivery prices will be reduced by over 15 billion lei, the cost of final products will be further cut back, and the price of those products will be lowered.

In order to strengthen the profit function in consolidating economic-financial self-administration, in providing greater incentives for enterprises to achieve the planned incomes, in ensuring regular production flows and deliveries, in reducing production costs and precluding the freezing of funds in excessive stockpiles of raw materials or finished products, economic units may now retain a considerably larger percentage of profits attained in excess of plan provisions for their own financial funds earmarked for self-financing and for material incentives for the working people. This measure harmoniously blends the general interests of the society for continuously increasing efficiency and profitability, with the interests of the working people for thus obtaining larger incomes in accordance with the results of their work, results reflected in the fulfillment and overfulfillment of planned profits.

As a result of increased efficiency and profits, ~~the degree of self-financing~~ of economic units also increased. Alone in 1983 the funds belonging to economic units and utilized for carrying out smooth processes of supply, production and delivery increased by 52 billion lei as compared to 1981, and in consequence of that, the volume of bank credits and of interest payments incurred by enterprises was relatively lower. The concept of self-administration and self-financing, according to which each sector of activity and of material production, and generally each type of human activity must be based on the principle of economic efficiency and profitability, has become all-encompassing and is being implemented in social-cultural establishments, institutions, administrative-territorial units, and so forth; thus, each unit is expected to achieve the largest possible profits and to secure the funds required for its activities. Consolidating self-financing is a forceful stimulus for all the units which, knowing that they can utilize a larger share of profits for their own development, are making increased efforts to reduce production costs as much as possible and to obtain the largest possible profits. On this basis, they also increase their contribution to the funds required by society and to the rapid development of the production forces.

Expanding and enriching the scope of material incentive on the basis of the guidelines of the RCP national conference of December 1982, the system of labor remuneration has also been considerably improved. The overall contract system is now being universally applied in order to closely link the incomes of the working people to the results obtained in production; at the same time, within the framework of the campaign to generally raise the working people's incomes, which ended at 1 August this year, the variable part of people's pay, which depends on the general results obtained by the respective unit, has also been increased. The institutionalization of the system permitting the working people to share in the profits attained and the utilization of some of the profits to improve housing conditions and to meet certain social-cultural requirements, also features particularly important measures which call for doubling

quotas to the production fulfillment and profit-sharing funds, and quotas to the funds earmarked for bonuses awarded for special achievements in production and for length of service.

Particularly important for this area is the recent decision of the Political Executive Committee of the RCP Central Committee which envisages that the fund for the working people's participation in the achievement of the production and profits and in profit-sharing can be increased—by more than one half of the amount of profits obtained in excess of the plan or as a result of a productivity higher than plan requirements, of reduced material consumption, of marketing abroad at prices higher than planned, of the introduction of results of scientific research, or of inventions and innovations—or reduced by half of the amount of fines and penalties incurred by the enterprise. These provisions will undoubtedly encourage even further the creative efforts of working people to identify new ways of increasing economic efficiency and thus of increasing their own income.

Along with these aspects, we would like to note that during the current 5-year plan the economic-financial mechanism has been improved in other important areas as well: the process of further promoting the initiative and responsibility of economic units in efficiently planning and carrying out their own activities and in securing the most suitable economic-financial levers for the fulfillment of quality tasks was intensified; the system of socioeconomic development indexes was further improved through the wider utilization of quality indexes as opposed to general and comprehensive indexes; a better correlation was ensured on the basis of economic principles between production costs in the various branches and sub-branches, thus permitting a more realistic estimation of their contribution to the national income; the principles of workers self-management and self-administration were more resolutely implemented in foreign trade by more closely linking the administration of production units to the financial-currency results of exports, thus promoting more intensive efforts to improve production quality, to reduce production costs as much as possible, and to permit our country's more active participation in international economic exchanges. Very significant among those concerns are the recent measures envisaging lower interest rates for all categories of credits and strengthening the rate of exchange of the leu against the other currencies.

The measures to improve the economic-financial mechanism, established with Comrade Nicolae Ceausescu's direct and particularly valuable contribution, reflect the consistency with which our party and its secretary general pursue the unflagging implementation of the principles of workers self-management and economic-financial self-administration and the sustained increase of the national income, and, on this basis, a better living standard for the people.

12782

CSO: 2700/52

## ACHIEVEMENTS, FUTURE PLANS OF MACHINE-BUILDING INDUSTRY

Bucharest CONSTRUCTIA DE MASINI in Romanian No 7-8, Jul-Aug 84 pp 341-348

[Article by Petre Preoteasa, minister of the machine-building industry: "The Economic Power of the Machine-Building Industry, at the Foundation of the Homeland's Continual Progress, of Our Whole Nation's Prosperity"]

[Text] Nicolae Ceausescu, in a report to the 12th RCP Congress: "...machine building will continue to be the branch with the most dynamic development."

In the four decades that have passed since the antifascist and anti-imperialist revolution for social and national liberation, the Romanian people have gained historical victories in all fields of activity.

The entire economic and social development attests to the fact that the Romanian Communist Party's capacity to constantly raise the efficiency of the productive power, to give new dimensions, quantitative and qualitative, to the fruitfulness of socialist labor, lies at the foundation of the continual progress of our society.

The new economic, political and legal framework created by the party--the nationalization of the main means of production--laid the foundations for turning to the planned organization and management of the national economy.

As part of the 5-year plans, industry was continually developed, becoming the leading branch in the economy: Romania is now 53 times stronger industrially than in 1938.

After the Ninth RCP Congress, Comrade Nicolae Ceausescu imparted an innovative air to the whole economic and social life of our homeland. Due to his visionary spirit and his innovative thinking, realistic, well-substantiated plans, in correlation with the conditions of the world economic situation and corresponding fully to our people's aspiration of progress and civilization, were laid out with farsightedness. Thus, the policy of industrializing the country also found its main directions in the political and economic doctrine of the secretary general of the party.

The strong development of industry has decisively put its imprint on the development of the other branches as well.

Over many 5-year periods, the machine-building industry has continually made a bigger and bigger contribution to attaining the objectives contained in the sole national plans for economic and social development of Romania.

It is Comrade Nicolae Ceausescu's great merit that he has constantly provided high rates of development of machine building, higher rates than in the other industrial branches, precisely in the basic idea of building a solid, stable foundation for developing the national economy.

The secretary general of the party has given effective support to machine building, so that this branch may have continual development, with a strong material base and capable of being a bearer of technical progress, of providing technical equipment for the national economy, of solving practically any technical problem, no matter how complex.

It is worth noting why, through the documents of the 12th party congress, such an important role is given to machine building in the general context of the rapid development of the national economy.

In comparison with other industrial branches, predominantly final ones, the machine-building industry has a high percentage in industrial output, in exportation, in the degree of employment of the work force and in the gross national product of the country.

Table 1. The Growth of Industrial Output

Category	(1965 = 100)			Average Annual Rate of Growth, 1966-1982 (%)
	1975	1980	1982	
Industry--total	322	507	526	10.3
Machine building and metalworking	477	865	915	13.9
Machine building	514	918	968	14.3

Table 2. The Average Number of Worker Personnel

Category	1950	1965	1975	1980	1982
Industry--total (thousands of people)	813.5	1,675.1	2,802.1	3,329.2	3,469.5
Machine building and metalworking (thousands of people)	172.9	406.0	912.2	1,186.0	1,247.4
Machine-building branch's percentage of the average number of worker personnel in industry (%)	21.3	24.2	32.6	35.6	36

At the same time, this branch is much more flexible and less polluting, utilizes low specific investments per workplace created and employs the work force in a very diverse structure of professions and levels of training.



In addition, the machine-building industry has greater possibilities of reducing the consumption of materials and energy, due to the following aspects:

The machine-building branch enters into production ties, direct and indirect, with far more branches that are already acting with this end in view;

In the machine-building industry, due to the much more diversified character of technical progress and the high complexity of the products, there are higher reserves for raising the degree of utilization of material resources.

At the same time, the reduction of the consumption in machine building is of particular importance for raising the efficiency of material expenditures, both at the level of industry and at the level of the whole national economy. The influence of reducing the specific consumptions in machine building--a predominantly final branch--has repercussions on all other branches which precede it in the technological production flow and with which it has a multitude of connections. Thus, the reduction of the consumption of rolled metal in making equipment will have an influence on the reduction of the demand for rolled metal, which--further--will have a favorable influence on the need for steel, cast iron, coke and iron ore, which are still imported in big amounts.

Consequently, the leadership of our party and state has mapped out very complex tasks for machine building with regard to the development of our own base of raw materials and energy, the modernization of agriculture, the national program for land improvements, Romania's more active and more efficient participation in the international division of labor, the country's valuta surplus, and world scientific and technical creation.

Synthetically, the machine-building branch is the branch with the highest production potential, participating with 35 percent in the creation of gross industrial output and with 22 percent in the achievement of the exportation of products. The production, through its size and structure, meets approximately 80 percent of the requirements of the national economy. The meeting of the domestic need is 100 percent for means of automotive and railroad transportation, tractors and petroleum equipment and nearly 100 percent for power-generating, mining and food equipment, ships and so on.

This industry consumes 32 percent of the metallurgical products and 9 percent of the chemical products, with the production having an intensive material character due to the high percentage (about 60 percent) of technological equipment for industry, means of maritime and railroad transportation, and motor vehicles for transportation.

The exportation is dominated by series products with a tradition in manufacture. The degree of coverage of importation by exportation is over 500 percent for the convertible-current relation and approximately 260 percent for the CTS [expansion unknown] relation.

The competitiveness of the products is in line with an average world level, except for products with a tradition in manufacture, such as petroleum equipment, excavators, tractors, bearings and so on.



The rise in the value of the metal incorporated into products due to exportation varies within limits from 1-fold to 3-fold, it being higher for refrigerating, petroleum and food equipment and locomotives.

From the start of the 5-year period to the present, over 2,700 new and modernized products have been assimilated, resulting in a cumulative degree of renovation of manufacture of at least 62 percent. The branch's list of products has constantly been supplemented with a number of pieces of equipment, implements and installations required by our socialist economy and for responding much more promptly to the requests of foreign partners, such as a high-capacity boiler of 1,035 tons of steam per hour, a lignite-burning boiler of 10 tons of steam per hour with fluidized-bed combustion, a bulb-type hydropower set of 27 megawatts for Iron Gates II, a turbine generating set of 80/100 and 330 megawatts for district heating, an FI25 drilling rig, electrically driven, a hydraulic caterpillar excavator of 2.5-3.2 cubic meters, a 180-horsepower diesel-hydraulic locomotive, diesel-electric locomotives of 1,500-4,000 horsepower, ARO [expansion unknown] automobiles with diesel engines, a jointed trolley bus with thyristorized equipment, a diesel generating set of 800 kilovolt-amperes, tractors in over 30 basic types and in over 300 variants, high-capacity technological lines for preparing meat, milling, breadmaking, pastry, flour paste ware, lactose and bottling liquids, refrigerator compressors and installations, 12,000-ton forging presses, heavy dump trucks of over 100 tons and so on. The list of them can go on, but the lack of space does not permit us to list all the 136,000 assortment and prototype dimensions that are now produced in machine building.

In the 1981-1985 period, considerable investment funds have been allocated; there is almost no enterprise that has not benefited from them. As a result, production capacities worth about 80 billion lei, meant particularly for making technological, metallurgical and mining equipment, means of transportation and agricultural machines and for eliminating bottlenecks in the fields of motor vehicles, hot sectors and surface coatings, will go into operation.

The worker personnel in our units exceed the figure of 600,000, of which nearly 8 percent are in research and design activity. The labor productivity has risen year by year, it always being above the level attained in industry.

Table 3. The Growth of the Labor Productivity per Person

Category	(1965 = 100)			Average Annual Rate of Growth, 1966-1982 (%)
	1975	1980	1982	
Industry--total	194	269	278	6.2
Machine building and metalworking	222	330	355	7.7

We now have a vast network of scientific-research and technological-engineering institutes (21), for practically every field of activity and group of products.

It should also be noted that three technological institutes (for hot sectors, cold sectors and welding), with the main task of rapidly providing advanced

technological solutions that are suitable for application and generalization in enterprises, perform their activity in machine building. It can be stated that we have a list of technologies capable of solving, on the basis of our own ideas, the major problems of the enterprises (working methods and the achievement of necessary equipment and installations). This has been confirmed by the working-out, also with our own forces, of technologies initially provided through importation.

After this brief review of the main aspects of the activity of machine building, we should point out our concerns and the priority tasks that devolve upon this branch in the 1986-1990 5-year period and later.

In the chronicle of the construction of the multilaterally developed socialist society, the 13th party congress will mark an event of the greatest significance for the continual evolution of Romania toward progress and civilization.

With good reason, it can be stated that, in future years too, the scientific conception and thought of the secretary general of the party, Comrade Nicolae Ceausescu, will be the basis of the strategy for rapidly developing socialist Romania.

In the field of the national economy, the improvement of the technical and qualitative level of the products, the reduction of consumptions of every kind and the better utilization of raw materials and supplies, and the more marked growth of labor productivity, of the profitability of production and of the efficiency of the entire activity constitute the basic idea on which the preliminary outline of economic and social development in the 1986-1990 period (approved at the plenum of the RCP Central Committee in June 1984) is based.

The results obtained thus far and the modern technical-material base created entitle us to state that, in the next 5-year period too, through its high rate of development, this branch will contribute decisively to providing vitality to the whole national economy.

Synthetically, the objectives of the development of machine building, which lead to a unitary technical and economic conception of scientific research, technological development and technical progress, in the 1986-1990 period and up to the year 2000, are defined as follows:

The assimilation of systems of complex technological equipment that support the introduction and development of modern, highly efficient technologies for all industrial branches, especially those meant to provide the base of energy and raw materials, a desire that, as Comrade Nicolae Ceausescu pointed out at the session of the Supreme Council for Economic and Social Development in June 1984, is constantly in the center of our activity;

The securing of the complete meeting of the need for machines for the overall mechanization of all work and the fulfillment of the tasks in the special programs--power production, agricultural modernization, irrigation, land improvements and so on;

The further development of the production of the means needed for carrying out transportation at a high level of efficiency, by rail, road, water and air;

The devising of our own manufacturing technologies, including the related technological equipment, needed for producing peak complex equipment, such as for nuclear power production and the aerospace industry, new technologies that lead to the better utilization of materials, to the substantial growth of labor productivity and to the approaching of the level of labor productivity in the industries of the economically developed countries.

The analysis of the prospective directions of development of the machine-building branch for the 1986-1990 period, and the orientations up to the year 2000, indicate two big categories of objectives of the activity of scientific research, technological development and technical progress: one that involves the implementation of the programs of national interest and one that involves the major problems of the branch.

The two priority objectives have as a common denominator machine building's bigger and bigger contribution to continually increasing the country's exportation and generally raising the Romanian economy's competitiveness.

The requirements of equipping the national economy and increasing exportation pose, with particular force, the problems of transforming production, by achieving complex technological assemblies, with a maximum degree of combination with electric and hydropneumatic equipment, with means of automation and control apparatus that permit the growth of the degree of utilization and the reduction of the consumptions and unit prices according to types of equipment.

In addition, it is necessary to raise the operational output and increase the contribution to the automation of production and to the growth of labor productivity in the entire economy.

Under the guidance of Comrade Acad Dr Eng Elena Ceausescu, the scientific research in machine building, as, in fact, our entire activity of scientific research and technological development, has made remarkable progress year by year.

The draft directives, which will be proposed for the approval of the 13th party congress, bring out the decisive role that this activity will have further, in the context of the tasks of the next 5-year period, in particular, in carrying out the quality program for the 1984-1990 period.

In order to secure the fulfillment of the big tasks in exportation, the analysis for improving the technical and qualitative level of the products has been extended to all products under current manufacture--over 136,000 assortment and prototype dimensions. The products slated for improvement in the technical and qualitative level represent at least 75 percent of the total commodity output that will be achieved during the current decade.

We must attain the following quality levels in the MICM [Ministry of the Machine Building Industry].

Table 4. Quality Level

Category	World Level	Old World Level	Below the World Level
I--Existing in 1983	26	54	20
II--Approved in 1984	50	35	15
III--Provisions for 1985	76	14	10
IV--Provisions for 1990	96	4	-

At the end of 1990, the percentage of products over the high level will be 2-5 percent.

To achieve the products proposed according to fields, products and groups of products, we are acting further in many ways.

The General Improvement of the Activity of Redesigning and Modernizing the Products

The design of those in the process of assimilation will be improved and the list of those at a peak world level will be expanded. The percentage of internationally tested and confirmed products will rise in stages from year to year.

There will be an unprecedented technical effort. The introduction of the 2,500 new and modernized products into manufacture (in 1986-1990) will provide a cumulative degree of renovation of 75 percent in 1985, achieved in the approved system of typification and unification.

The growth of the competitiveness of the products for exportation will be attained by diversifying the ones that have advanced processing and high efficiency.

We are acting so that the structure of production may be radically improved, according to criteria close to the structure of the international demand, by aligning with the trends of its evolution in view and by maintaining a high degree of specialization of Romanian exportation for the products that have attained good penetration on the foreign market.

To this end, we will use more the production capacities in the big heavy-equipment combines, in Bucharest, Cluj-Napoca and Iasi, in order to create turnkey complex technological lines, particularly for exportation.

We plan to raise the percentage of equipment that has much more Romanian intelligence included and can be sold in bigger volume, at over \$5,000 per ton.

Through the measures provided in the program, we will get the value of a ton of raw material incorporated into the products meant for exportation to rise continually, by a factor of 2.5-3 in comparison with the current level.

In order to create flexibility in exportation, steps have been taken regarding proper technical preparation for manufacture. Thus, we are acting so that all



tool-shops in the system of the Ministry of the Machine-Building Industry will double the output of SDV's [tools, devices and gauges] by the end of 1984.

#### The Expansion of Mechanization and Automation for Raising Labor Productivity

The raising of labor productivity by over 2-fold by the end of 1990 will be based on technical progress to a degree of about 60 percent.

To this end, we are devoting attention to efficient technologies, the mechanization of the production processes, automation, the use of microprocessors and industrial robots (especially in the hot sectors) and computer-aided design.

In the direction of reducing the existing gap, we will introduce into the machine-building branch in 1986-1990 over 500 new and modernized technologies, oriented particularly toward the expansion of the technologies for precision casting and of heat treatments in an electron flow and with plasma, welding in a medium of protective gases, electrochemical, laser and ultrasonic processing, deformation in an electrostatic field, electrophoretic coating and so on.

The economic effects of improving the technical and qualitative level of the products are reflected in the substantial growth of the efficiency indicators.

In comparison with the 1984 plan, the level of the total costs for our ministry represents a reduction of 62.1 lei in 1985 and of 216.1 lei in 1990, in comparable prices, for each 1,000 lei of commodity output. This means an increase of about 3-fold in the annual rate of reduction in 1985 and of 2-fold in 1989-1990, in comparison with the average results in the first 3 years of the current 5-year period.

Another basic objective is the reduction of the main consumption rates.

We have proposed that, in 1990, we achieve each ton of commodity output with about 2.7 tons fewer of finished rolled metal than in 1985. In order to reach this target, we will involve our research and design institutes more, in the sense of changing the constructive conception of the products and the technological conception, which will lead to the reduction of the weight, to the utilization of economical technologies, to the improvement of the functional parameters and to the growth of the service life and the operational reliability.

At the same time, for raising the level of the quality of the products, in order to increase the efficiency of the whole activity, our institutes will act to implement--on a wide-scale in production--electronics and electrical engineering, automation and robotization.

Vigorous actions are being taken to raise the competitiveness of manufacture for the main products and groups of products.

The development of the base of raw materials and energy is an important objective.



As regards technological equipment for underground mining work, the expansion of the utilization of digging, support and sampling complexes, the digging of galleries with self-propelled technological equipment, the expansion of automation for maintaining the digging direction, and the expansion of the use of loading and transporting machines with diesel engines and of the procedures of digging shafts and making raises by drilling and blasting, as well as by boring over the whole section of workings, are in view.

The achievement of equipment adapted to the conditions specific to the deposits in our country, composed of thin and very thin beds (lignite, bituminous coal), horizontal beds, slanted beds and winding beds, constitutes a special problem for the conception of mining equipment.

As regards mining transportation, the flows of the conveyors will be increased, automated conveyors and high-capacity silo trains will be achieved and the mines will be equipped with at least two transportation systems.

In the field of surface operations, the raising of the capacity of the digging and dumping equipment, the growth of the power and flows of the conveyors, the application of advanced transportation technologies, and the management of the activities of the quarries by computer are planned.

For work of dressing useful mineral substances, high-capacity equipment for technological lines (mills, flotation machines, vacuum filters and so on) and equipment for applying new physical and chemical procedures of extracting metal from ore (with ion exchangers, with organic solvents, by degassing under pressure and so on) will be assimilated and automatic systems for optimally conducting the dressing processes will be introduced.

In the field of the construction of petroleum equipment, the program of off-shore drilling for hydrocarbons (in zones with the water depth beyond 90 meters) will be continued, expanded and diversified. Research will be done on the extraction of useful minerals from marine zones. The program of surface drilling at great and very great depths (between 10,000-15,000 meters) will be continued and expanded. An accent will be put on assimilating equipment resistant to corrosive media ( $H_2S$  and  $CO_2$ ), to high pressures (1,400-2,000 bars) and to temperatures above  $400^{\circ}C$ . Complex equipment for raising the factor of recovery of crude oil from the deposit, by advanced methods (injection of steam into the deposit, underground combustion at great depths), will be achieved. Highly productive and more durable equipment will be developed for extracting, separating, collecting and transferring crude oil in a closed system.

The surface-drilling equipment for nonpetroleum activities, especially big-diameter drilling for mining purposes, will be diversified. Systems will be achieved for automatically conducting the process of drilling and extraction of crude oil (with a process computer).

In the field of the construction of power-generating equipment, a special accent will be put on achieving equipment for energy conservation and for the development of energy production. Thus, equipment for recovering secondary

energy resources, regenerative turbines with freon (15-1,000 kilowatts), steam-expansion turbines (15-1,000 kilowatts) and gas-expansion turbines (500-300 [as published] kilowatts), waste-heat boilers and installations, equipment for utilizing unconventional energy resources (solar collectors and installations, equipment for utilizing geothermal energy, installations for utilizing biogas and domestic refuse), electrical heat pumps equipped with helical and centrifugal compressors and others will be achieved. Equipment operating on bituminous shale will be achieved for expanding district heating, through the combined production of electrical and thermal power.

The construction of boilers, oriented further toward burning bituminous shale and low-grade coal with as high an output as possible, using fluidized-bed combustion, combustion intensified by a whirling process and so on, will be developed.

The program for utilizing the country's hydropower potential, by achieving high-performance hydromechanical equipment and hydropower sets--among which the hydraulic turbines with yields of 89-93 percent and the bulb-type, axial and radial-axial turbine pumps stand out--will be continued. At the same time, the micro hydropower sets needed for fully utilizing low-potential hydropower resources will be achieved further.

In the field of the construction of tractors and agricultural machines, the mechanization of the heavy work in agriculture and industry will be secured; the range of tractors will be updated, with an accent being put on raising the performances, reducing fuel consumption, creating much better conditions for the tractor operators and automating the controls, along with reducing the operating costs. The tractors will have to work with multipurpose sets of machines, for doing the work of agricultural mechanization and soil preparation, work of sowing and planting, of fertilizer administration, of disease and pest control, of drainage, irrigation and soil conservation, of beet growing, of transportation and handling of products, in fruitgrowing and vinegrowing.

As regards agricultural machines, new equipment with higher outputs will be achieved, among which there stand out the combines for harvesting cereals in grains and for harvesting husked corn and maize (with chopping of the stalks and recovery of the husks), presses for baling hay and straw (with square and cylindrical bales), machines for harvesting dry beans, potato combines and so on. New, active bodies, especially for reducing energy consumption, will be created and introduced.

As regards the better utilization of agricultural and food raw materials, in order to secure the meeting of the population's requirements to a growing extent, the program for assimilating equipment for processing products of animal and vegetable origin, at higher parameters, will be continued, expanded and diversified, with a view to obtaining products and byproducts of a quality comparable to that of the products achieved on a world level.

Thus, equipment for introducing new procedures of processing meat (electrical stimulation, heat treatment with microwaves) and milk (ultrafiltration, reverse osmosis) and for introducing new technologies for canning vegetables and

fruit (heat treatment with microwaves, ionized and ultraviolet radiation) will be achieved. The research for achieving the equipment needed for applying biotechnologies on an industrial scale in vegetable and fruit processing will be started.

The modernization of the equipment for processing sugar and oil, with a view to raising the performances and increasing the productivity, that is, increasing the degree of extraction of sugar from beets and of oil from oilseed and obtaining products with a greater amount of active substances, is planned.

The automation of the technological lines for making bread and bakery products will be expanded, the equipment will be improved, with a view to reducing the energy consumption, and baking and drying installations using unconventional energy sources will be achieved.

The research programs in the field also provide for the achievement of highly productive installations for packaging food products, with a high degree of automation, and the achievement of containers from domestic materials, with a minimum consumption of metal and other materials and with technical and aesthetic characteristics comparable to those on a world level.

In the field of means of transportation, railroad transportation, in particular, will be developed further, as being the most economical form of transportation. High-power and high-speed locomotives will be achieved, the range of specialized cars will be expanded, and the comfort of the passenger coaches will increase. The rolling stock will be equipped with the apparatus needed for the automation and cybernation of the traffic. Gas turbines will be used as a means of propulsion, and research will be performed for achieving unconventional means of guided transportation (magnetic lift, pneumatic lift, tubes and so on).

The series motor vehicles will be diversified and modernized, with high-capacity motor vehicles (heavy dump trucks, of over 100 tons of payload, powered by turbine engines and with electric transmissions) being achieved, and engines based on new principles and fuels, with a minimum degree of environmental pollution, will be achieved. The economic efficiency of transportation will be increased, especially by raising the load factor.

The meeting of the domestic requirements in the automobile field and the achievement of vehicles competitive on the world market, by assimilating a family of economical automobiles with low operating costs, will be pursued further. The research for achieving, in our own conception, bodies with high aerodynamic performances, better safety conditions and greater comfort, in modern forms, will be intensified.

The manufacture of high-tonnage seagoing ships, especially ore ships and oil tankers, for products derived from petroleum and chemical products, will be diversified. The percentage of specialized ships for various types of goods (food products, fragile products, automobiles, equipment, live animals, refrigerated ships and so on) will increase. New types of river ships for various purposes will be created. The research will tackle the achievement of

floating technical means meant for exploring maritime natural resources. The accent will be put further on the assimilation of specific components for ships, the aim being to increase the degree of integration of them.

In the field of equipment for construction work and earthwork, the supplementation, expansion and creation of new ranges of machines and equipment with high performances and increased outputs (walking and electrical excavators, ditch- and conduit-diggers, installations with sliding forms for concrete roads, installations for recycling asphalt pavement and so on) are planned.

In the field of technological equipment for hoisting and transportation, the performances will be improved and the equipment will be diversified, with a view to satisfying the requirements of the various branches of the national economy: overhead cranes for metallurgy and ferrous metallurgy, tower cranes with a tilting and horizontal arm, floating cranes and so on. The research for achieving transportation installations with unconventional transportation elements (air cushion, magnetic cushion, air-propelled transportation, fluidized tracks on automatic mechanical-processing lines) will be intensified. Warehouses for palletized goods, with various degrees of automation and storage, and warehouses run by computers will be achieved.

In the field of general-purpose components, the creation and development of families of motors with higher performances (for automobiles, motor vehicles, tractors, construction equipment, locomotives, industrial drives) and the diversification of the families of compressors, with low energy and metal consumptions and greater reliability, are planned.

Special, high-performance pumps and fittings, for nuclear power production, chemistry, petrochemistry, irrigation and shipbuilding, and drives for them will be achieved further.

New families of general-purpose machine parts (reducers, variators, motor reducers, high-power transmissions, assembly parts) with a high degree of typification will be achieved on the basis of experimental research and the tackling of computer-aided design.

As is known, important tasks regarding the growth of exportation and the achievement of a favorable balance of trade, as well as the obtaining of valuta surpluses from international trade exchanges, devolve further upon machine building.

Consequently, we have proposed to expand the long-term cooperation and specialization with socialist countries and with other countries and the continual stimulation of production for exportation. It is a sure way for the imports of raw materials, fuel and energy for the national economy to be offset by manufactured products, achieved particularly in machine building.

In order to provide a sure prospect of economic and social development of the country, the suitable organization of the activity of scientific and technical forecasting according to fields, products and groups of products has been undertaken in machine building.



In general, we must not understand these forecasts as a summation of the possibilities of achieving--at the existing or newly created capacities--products or technologies that derive from the existing ones without much effort at technical progress.

They must be prepared in a clear view of rational and efficient development, in a close dependency on the concrete conditions of our national economy and on the trends on a world level, so that they become a useful instrument in making the planning decisions, on the basis of selecting and thoroughly studying the technically possible variants and the most advantageous ones from all viewpoints.

At the same time, for supporting the splendid objectives of the 1990's, we have proposed to revise all our programs, to intensify the actions for raising the level of professional and general training of the worker personnel and to strengthen the order and discipline to the level of the current requirements.

The very important role always given to machine building in securing the future development of Romania, an economic-policy choice of decisive significance, totally involves our strong detachment.

We will use the entire capacity that we possess to greet with new achievements the 2 great national events of this year, the 40th anniversary of the antifascist and anti-imperialist revolution for social and national liberation and the 13th party congress, being aware that, in this way, we are contributing to the strengthening of the homeland's economic power, to the raising of our people's standard of living, to the multilateral progress of socialist Romania.

12105

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## STATUS OF FEDERAL FUND FOR UNDEVELOPED AREAS

Belgrade EKONOMSKA POLITIKA in Serbo-Croatian 22 Oct 84 pp 13-14

[Text] The relationship between developed and undeveloped was more moderate at the beginning of autumn than expected and announced. Last week, the Coordination Council of the Federal Economic Chamber met in Pristina with the primary task of supervising the effectiveness of support for insufficiently developed regions, while only a week before, the Federal Fund Assembly met in Belgrade. In both cases, the newspapers hardly found it necessary to note the event. This was obviously due to the fact that reporters correctly perceived that nothing happened at either of these forums that was not already known and had not been repeated numerous times in various places.

It is well known that the federal social councils would say certain things about the nature of future measures for determining the developmental level, from which, naturally, it will be clear who will have the status of "undeveloped" in the future, or who will receive what "compensation" for that.

In the meantime, the institutions involved in monitoring events in the sphere of the relationship of developed-undeveloped status systematically present numbers among which two features are particularly crucial at the moment. The first relates to the tabular presentation of the percentage of participation of each republic and province in forming the capital resources of the Federal Fund.

Share of Republics and Provinces in Forming the Capital Resources of the Federal Fund (in percentages)

	71-75.	76-80	81-85.
Bosna i Hercegovina 1)	12,1	12,7	14,3
Crna Gora 2)	1,7	1,9	2,4
Hrvatska 3)	27,6	2,2	24,7
Makedonija 4)	3,5	3,5	4,9
Slovenija 5)	18,1	16,7	14,6
Srbija 6)			
(bez SAR)	22,4	24,0	26,0
Kosovo 7)	1,8	1,9	2,2
Vojvodina 8)	10,8	10,1	10,9
razvijeni 9)	78,9	77,9	76,2
nerazvijeni 10)	21,1	22,1	23,8

Key: 1. Bosnia and Hercegovina; 2. Montenegro; 3. Croatia; 4. Macedonia;  
5. Slovenia; 6. Serbia proper; 7. Kosova; 8. Voivodina;  
9. developed regions; 10. undeveloped regions

To the table should be added that the rate of setting aside capital to support development of undeveloped regions from the social product of the social sector in Yugoslavia amounted to 1.94 percent in 1971-1975 (for a total of 26.014 billion dinars); for the period 1976-1980 the percentage was 1.97, totalling 85,195 billion dinars, and for 1981-1986 it will total 1.86 percent, or 212.247 billion dinars. The total amount for the period 1971-1985 is to reach 323.456 billion dinars. How and why it happens that, in the resolutions of the Federal Executive Council, it is asserted that the economy of Serbia is stagnating in developmental terms while its share of the financing of undeveloped regions continues to grow, remains unclear.

The other significant fact recently brought out by the Federal Fund relates to the payment of annuities. The fund's services assert that up to the present it has provided all funds needed for paying installments as they come due. The question is whether things will go that smoothly beginning with next year, when a total of 18 annual payments with a combined value of 141.1 billion dinars comes due for payment by the economies of undeveloped republics and Kosovo. One thing is certain: The payments that come due will play a very important role in defining future criteria and parameters of the degree of development. These factors are probably also very significant in creating anti-inflationary policy.

12131

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## ADVANTAGES SEEN IN DEVELOPMENT OF SMALL INDUSTRY

Belgrade PRIVREDNI PREGLED in Serbo-Croatian 25 Oct 84 p 3

[Article by S. Sindolic]

[Excerpts] In recent months several new industrial plants have begun operation. In circumstances of restricted investments, newly constructed facilities have a special significance. It is not a matter of capacities to satisfy local needs, but of facilities of broader significance. Furthermore, these are not major industrial complexes, but primarily facilities that in coming years are to contribute to increased production and, what is more, to reducing the dependence on imports. The basic feature of all of this is a gradual reduction of imports of finished products, parts or raw materials.

At the Priboj Automobile Plant (FAP) a new stamping plant has been opened. The new FAP production facilities provide the plant with the capacity to produce complete stamped parts for all types of vehicles it produces. In that manner it will reduce imports of stampings for trucks by about 7 million West German marks annually. At the same time, it will enable FAP to produce up to 14,000 heavy trucks per year for the economy. Besides eliminating imports of heavy, large stampings, the new stamping plant makes it possible to export parts and subassemblies of this and other basic associated labor organizations that comprise the FAP complex.

The refinery in the Banat has received a new facility for producing crude oil from shale. Built with the pooled resources of several organizations that make up the Naftagas special associated labor organization, in the first year the new installation should provide about 8,000 tons of crude oil worth 19 billion dinars, with noticeably higher production in the future. When we note that Yugoslavia imports significant amounts of crude oil (about 8.5 million tons in 1982 and 9.4 million tons last year), it becomes possible to assess the value of this new facility, even though it produces only small quantities.

The refractory Materials Plant in Busovaca, which operates as part of the Vatrostalna Plant of Zenica, has begun to use quartz for its own needs thanks to new investments. This has resulted from the discovery of quartz of excellent quality in the Tisovec area which has made it possible to eliminate previous imports of 2,500 tons of quartz per year from the FRG and Sweden. Besides confirmed reserves for 5 years, it is anticipated that 1,500 tons of quartz will be mined this year, with production doubling in the next 5 years. It is also

significant that currently the Refractory Materials Factory at Busovaca is developing a plan for a new refractory brick plant, which is to be completed in 2 years and which will then produce about 25,000 tons of refractory bricks annually, thus eliminating imports and providing for the annual needs of all domestic iron works.

Two new factories, Dekorplast and Rudoplast, built at Uvac near Priboj and forming part of the Poliester-Priboj complex, will produce parts for vehicle interiors, automobiles parts of polyurethane, water sports equipment and anti-hail rockets, among other plastic articles. Previously all these items were simply imported. At Grecaj near Aleksinac, the Paper Factory of Kolicevo (Slovenia) has built a plant for collecting and reprocessing paper, which in its first year will process 15,000 tons of paper and will increase that total to about 30,000 tons in the second year. This production will significantly reduce imports of this raw material. At the Crvena Zvezda Plant in Kragujevac, with rather small investments several specialists have built a number of vacuum devices that are essential for the hospital's surgical department. The price for these devices is more than 250,000 dinars, and previously they were imported in most cases. Thanks to small investments, the Keramika ceramics plant in Mladenovac has, after the "plastics fad" and expensive imports (of products based on petroleum) begun to expand its product mix of special acid-resistant baths, special equipment for processing industries, sewer pipes, etc. These new products will also reduce dependency on imports.

Practice has shown that at times, even with just small investments, new products can be provided and product mix improved, thus gradually reducing the list of products being imported. In this it is even more important than previously to study in a timely fashion the product and market needs of domestic and foreign markets, especially in raw materials and semimanufactured materials, for which prices are constantly increasing. Production based on raw materials that at one time were very cheap (such as crude oil, various chemical products, etc.) is becoming increasingly expensive. Now more than ever, this is a good warning of the need for future investments in production facilities.

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